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FM 11-95

DEPARTMENT OF THE ARMY FIELD MANUAL

ARM SIGNAL BATTALION

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**HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1960**

FIELD MANUAL

ARMY SIGNAL BATTALION

FM 11-95	}	HEADQUARTERS,
CHANGE NO. 1		DEPARTMENT OF THE ARMY
		WASHINGTON 25, D.C., 28 March 1963

FM 11-95, 21 April 1960, is changed as follows:

2. Scope

a. This manual, based * * * and nonnuclear warfare.

b. (Added) Users of this manual are encouraged to submit recommended changes or comments to improve it. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be furnished with each comment. Comments should be forwarded directly to the Fort Monmouth Office, Communications-Electronics Combat Developments Agency, ATTN: Doctrine Division, Fort Monmouth, N. J.

Figure 2. In the legend, delete "Theater Sig Long Lines Command" and substitute: Theater Signal Operations Command.

6. Field Army Area Communication System

a. Basically, the field * * * the traffic load. Command signal centers are established to serve the echelons of field army headquarters and corps headquarters. Each command signal * * * other factors permit.

* * * *

Figure 5. Substitute SB-86/PT for "SB-22/PT(2)" where it appears in the Battalion Headquarters block in this diagram.

28. Communications Center Platoon

The communication centers * * * at army rear.

* * * *

c. The message center * * * to Army rear.

* * * *

(5) (Added) The section provides and operates a Facsimile

Central, AN/TXC-1, at army main; the same equipment is provided for army alternate on a standby basis.

- (a) Two facsimile transceivers in the AN/TXC-1 at army main are used as terminals for circuits from the tactical Air Force weather detachment, which furnishes weather maps as they are produced.
- (b) A circuit from army group is utilized to send and receive map overlays, tactical situation maps, and other data that may be readily transmitted over facsimile equipment.
- (c) The section does not have equipment for displacement.

* * * * *

f. Rescinded.

* * * * *

Figure 12. Add PU-294/G as the power unit utilized with each AN/MCC-6, AN/MRC-54 and AN/GRC-26 appearing in this figure. In the left center of the diagram delete "PU-249/G" from the AN/GRC-26 and substitute: PU-294/G.

Figure 13. In the block labeled, Radio Relay Repeaters, Wire Carrier Repeaters, and HF Radio Sets Used As Required—

Delete "AN/GRC-65" and substitute: AN/GRC-19.

Delete "S-144/G" and change vehicular symbol from truck 21½-ton to truck ¾-ton.

Figure 15. In the block labeled, RATT Displacement Capability, delete "PU-248/G" from the AN/GRC-26 and substitute: PU-294/G.

Figure 16. In the block labeled, Army Rear Comm Cen Area, delete "PU-248/U" and substitute: PU-294/G.

Figure 19. In the block labeled, Transmitter Park, add a third AN/MRT-9 (with power unit PU-294/G) with a cable connecting it to the AN/MCC-6.

36. General

* * * * *

c. The company depends * * * army alternate FATOC. Trunk circuits to corps fire support elements (FSE) and other tactical support agencies operating at a distance from the FATOC are provided by other elements of the army signal battalion and the army area communication system.

* * * * *

42. Radio Teletypewriter Platoon

The radio teletypewriter * * * in the platoon.

* * * * *

b. The main FATOC * * * three main categories:

- (1) *Radio transmitting.* Three Radio Transmitting Centrals, AN/MRT-9, are operated in a location remote from the FATOC.

- * * * * *
- (b) The AN/MRT-9's are * * * radio teletypewriter park. All of the sets in the radio teletypewriter park are **remoted** from the communications van of the direct support aviation section in the FATOC. Transmission from the * * * a carrier system.
- * * * * *

APPENDIX

REFERENCES

(Superseded)

FM 1-5	Army Aviation Organization and Employment.
FM 3-5	Chemical, Biological, and Radiological (CBR) Operations.
FM 11-8	Field Radio Relay Techniques.
FM 11-20	Organizations and Operations in the Corps, Army, Theater of Operations, and GHQ.
FM 11-21	Tactical Communications System; Army, Corps and Divisions.
FM 11-40	Signal Corps Pictorial Operations.
FM 11-50	Signal Battalion, Armored, Mechanized, and Infantry Divisions.
FM 11-57	Airborne Division, Signal Battalion.
FM 11-86	Combat Area Signal Battalion, Army.
FM 11-92	Corps Signal Battalion
FM 21-5	Military Training.
FM 21-6	Techniques of Military Instruction
FM 21-30	Military Symbols.
FM 21-40	Small Unit Procedures for Nuclear, Biological, and Chemical Warfare.
FM 21-48	Chemical, Biological and Nuclear Training Exercises and Integrated Training.
FM 22-100	Military Leadership.

FM 24-16	Signal Orders, Records and Reports.
FM 24-17	Tactical Communications Center Operations.
FM 24-18	Field Radio Techniques.
FM 24-20	Field Wire and Field Cable Techniques.
(C) FM 24-150	Electronic Warfare (U).
FM 30-9	Military Intelligence Battalion Field Army.
FM 30-20	Aerial Surveillance - Reconnaissance, Field Army.
FM 31-30	Jungle Operations.
(C) FM 31-40	Tactical Cover and Deception (U).
(CM) FM 32-5	Communication Security (U).
(S) FM 100-1	Doctrinal Guidance (U).
FM 100-5	Field Service Regulations—Operations.
FM 100-10	Field Service Regulations—Administration.
FM 100-11	Signal Communication Doctrine.
FM 100-15	Field Service Regulations; Large Units.
FM 101-5	Staff Officers Field Manual—Staff Organization and Procedures.
FM 101-10	Staff Officers Field Manual—Organizational, Technical, and Logistical Data—Part I.
TC 101-2	Tactical Operation Centers.
TM 57-210	Air Movement of Troops and Equipment.
AR 220-10	Preparation for Oversea Movement of Units (POM).
AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.
AR 380-5	Safeguarding Military Information.
AR 600-20	Army Command Policy and Procedures.
AR 750-5	Organization Policies and Responsibilities for Maintenance Operations.
AR 750-8	Command Maintenance Management Inspections.
AR 750-625	Maintenance Inspections and Reports; Signal Equipment.
DA Pam 108-1	Index of Army Motion Pictures, Filmstrips, Slides, and Phono-Recordings.
DA Pam 310-series	
TOE 11-22	Headquarters and Headquarters Detachment Signal Group.
TOE 11-95(D)	Army Signal Battalion.
TOE 11-96(D)	Headquarters and Headquarters Company, Army Signal Battalion.
TOE 11-97(D)	Signal Command Operations Company, Army Signal Battalion.
TOE 11-98(D)	Signal Field Operations Company, Army Signal Battalion.

TOE 11-99(D) Signal Support Operations Company, Army
Signal Battalion.

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

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J. C. LAMBERT,
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NG: State AG (3); units—same as active Army except allowance is one copy to each unit.

USAR: Same as active Army except allowance is one copy to each unit.
For explanation of abbreviations used, see AR 320-50.

FIELD MANUAL }
No. 11-95

HEADQUARTERS,
DEPARTMENT OF THE ARMY,
WASHINGTON 25, D. C., 21 April 1960

ARMY SIGNAL BATTALION

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* This manual supersedes FM 11-95, 1 March 1956.

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CHAPTER 1

INTRODUCTION

1. Purpose

This manual provides information and guidance on the employment and operation of an army signal battalion.

2. Scope

This manual, based on TOE 11-95(), covers the organization, mission, operations, and capabilities of an army signal battalion. It presents material that is applicable without modification to both nuclear and nonnuclear warfare.

3. References

Publications pertaining to subjects within the scope of this manual are listed in the appendix.

CHAPTER 2

FIELD ARMY COMMUNICATION SYSTEMS

4. Communication Requirements

The concept of field army operations, through its emphasis on dispersion, mobility, and flexibility under conditions of nuclear warfare, generates signal communication requirements that can only be met by a dispersed, mobile, and flexible communication system. Thus, the modern field army communication system will be required to—

- a.* React quickly to changes in operational plans and task organization.
- b.* Support all field army requirements and certain full-time circuit requirements of higher headquarters.

5. Communication Capabilities

The modern field army communication system must have the capability to—

- a.* Provide communication service to widely dispersed units and installations.
- b.* Meet changes in field army task organization and, at the same time, facilitate relocation of units, command posts, and installations.
- c.* Provide patching facilities to permit the electrical rerouting and physical relocation of circuits with a minimum of system changes.
- d.* Be composed of building-block-type units, so that rapidly changing requirements can be met by adding or removing unit elements.
- e.* Provide continuity of signal communications during nuclear or nonnuclear warfare.
- f.* Provide sole-user and through-trunk circuits for coordination in the employment of weapons systems, and for other operations as required.
- g.* Provide a high-capacity potential to meet the demands likely to be placed upon it.
- h.* Operate over extended distances.
- i.* Be sufficiently mobile to support the elements of a rapidly moving field army.

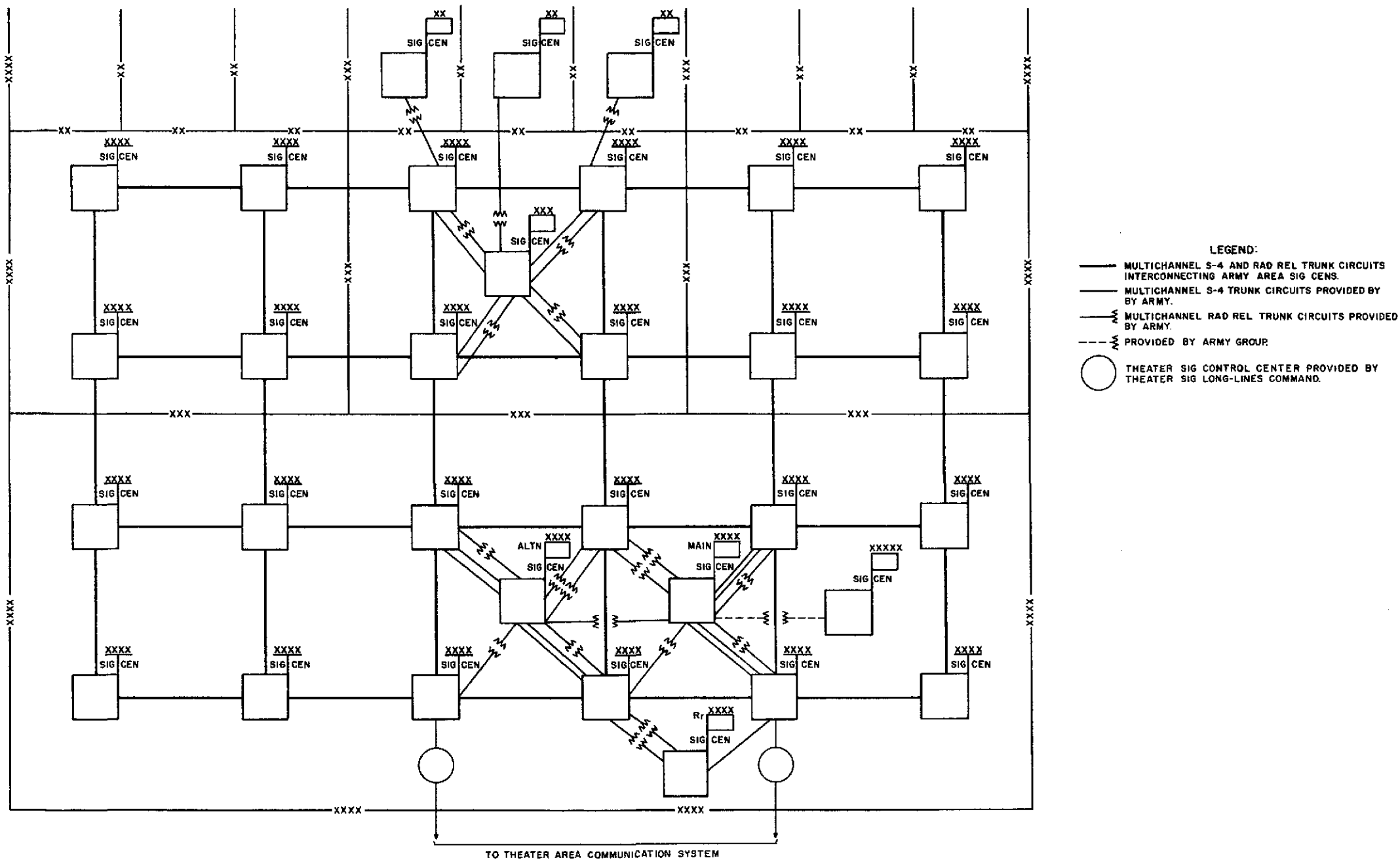


Figure 2. Type field army communications systems. (Schematic only. Terrain, troop density, and other factors dictate the configuration.)

6. Field Army Area Communication System

a. Basically, the field army area communication system is composed of signal centers interconnected by trunk circuits under centralized system control. Each signal center is assigned an area of responsibility; it provides all signal facilities required to support the units and activities within its area. Each area signal center of the field army area communication system is interconnected with at least two others to provide alternate routing and permit distribution of the traffic load. Command signal centers are established to serve the echelons of field army headquarters. Each command signal center is interconnected with two or more area signal centers to provide alternate routing of circuits and flexibility (fig. 1). In addition, command signal centers may be directly interconnected when availability of facilities, distance, and other factors permit.

b. The field army area communication system varies in configuration, size, and composition according to the following factors:

- (1) Mission, composition, and organization of the field army.
- (2) Location and disposition of the supported forces, units, and installations.
- (3) Terrain and size of the field army area.
- (4) Enemy capabilities.
- (5) Availability of indigenous facilities.
- (6) Number of signal centers composing the system.
- (7) Communications-electronics requirements of the supported forces, units, and installations.

c. The field army area communication system is interconnected through its area signal centers with the headquarters of corps, the signal communication system of divisions, and other major subordinate commands comprising the field army. Area signal centers of the field army area communication system may be physically located within the division area. In the rear of the field army area, signal facilities operated by theater army and located to interconnect with field army signal centers provide the field army access to the theater area communication system. Figure 2 illustrates the interconnection of various signal centers.

d. The field army area communication system is installed, operated, and maintained by the combat area signal group, army, which consists of combat area signal battalions, army, a signal cable construction battalion, and other units as required. The combat area signal battalions, army, install, operate, and maintain the area signal centers and the interconnecting trunk circuits. The signal cable construction battalion assists the combat area signal battalions in installing cable trunk circuits as required.

7. Army Headquarters Signal Communications

The army signal battalion provides the command signal centers which serve the echelons of field army headquarters. It is assigned to the army signal group (TOE 11-22()); however, the army signal officer normally exercises operational control.

CHAPTER 3

THE ARMY SIGNAL BATTALION

8. Mission

The mission of the army signal battalion is to—

- a. Provide signal communications for a field army main and rear command posts (CP's).
- b. Provide signal personnel and equipment for the installation and operation of a field army alternate CP.
- c. Provide signal communications and facilities for the field army tactical operations center (FATOC) agencies and associated air support communications.
- d. Provide ground pictorial services for a field army headquarters.
- e. Provide an air courier/messenger and motor messenger service for a field army.

9. Capabilities

a. The army signal battalion has the capability to—

- (1) Install, operate, and maintain all means of signal communication for army main, army rear, and army alternate CP's, and for the FATOC and associated air support communication facilities, to include message center, motor messenger, cryptographic, facsimile, teletypewriter, telephone, and radio.
- (2) Install and operate radio relay systems from echelons of field army headquarters to points of entry into the army area communication system.
- (3) Install and operate spiral-four cable carrier systems (except for the installation and maintenance of the cable and unattended repeaters) from echelons of field army headquarters to designated area signal centers.
- (4) Provide signal facilities for the operation of a field army mobile tactical CP, when required.
- (5) Provide multichannel systems to connect army main, army rear, or army alternate signal centers to army units, as required.
- (6) Provide ground pictorial service for field army headquarters. This includes reproduction of army aviation

aerial photographs, but does not include reproduction of Air Force aerial reconnaissance photographs or exposed motion picture film.

- (7) Operate an army air courier/messenger and motor messenger service between echelons of field army headquarters and major subordinate commands.

b. The army signal battalion depends on the army area communication system for long-line trunking facilities in the field army; on the signal cable construction battalion for installation and maintenance of spiral-four cable and unattended repeaters in land-line systems connecting echelons of the field army headquarters to army area signal centers; and on appropriate medical units in the field army area for medical service.

c. Individuals of the army signal battalion, except the chaplain, can fight as infantrymen when required. This battalion has the capability of defending itself and its installations against hostile ground attack.

10. Control

a. *Command.* Operational and administrative control of the army signal battalion is as follows:

- (1) The army signal officer normally exercises operational control of the army signal battalion.
- (2) The army signal group commander normally exercises administrative control only of the army signal battalion.

b. *Battalion Operations.* The battalion commander normally receives instructions for the accomplishment of the battalion mission directly from the army signal officer and his staff. He utilizes the battalion staff to exercise supervision of the administrative, operational, and logistical functions of the companies of the battalion.

- (1) Supervision of administrative functions of the battalion normally is exercised by an executive officer and an adjutant. Personnel administration is performed on a consolidated basis at battalion headquarters.
- (2) Supervision of operations, training, and intelligence functions of the battalion is exercised by the battalion S2/3, who is the operations officer.
- (3) Supervision of logistic and maintenance functions is exercised by the battalion S4, the signal maintenance officer, and the motor officer. This includes the coordination of requisitions; the provision of technical service supply and salvage; and the provision of supplemental organizational maintenance for signal equipment and motor vehicles or organic units.

11. Assignment and Mobility

- a. The army signal battalion is assigned to an army signal group (TOE 11-22()).
- b. The battalion is approximately 90 percent mobile.

12. Organization

The army signal battalion (fig. 3) consists of a headquarters and headquarters company, a signal command operations company, a signal field operations company, and a signal support operations company.

a. Headquarters and headquarters company is employed by the battalion commander to exercise control over organic companies; to direct the installation, operation, and maintenance of army headquarters communications facilities; and to provide pictorial and air messenger services.

b. The signal command operations company is employed by the battalion commander to install, operate, and maintain the terminal signal communications facilities at all echelons of army headquarters, and between army main and attached corps, army airfields, and major army units that are in close proximity to army CP's. It provides message center, teletypewriter, telephone, facsimile, and motor messenger services.

c. The signal field operations company is employed by the battalion commander to install, operate, and maintain carrier facilities, radio relay trunk facilities, and radio teletypewriter facilities as required to support echelons of army headquarters.

d. The signal support operations company is employed by the battalion commander to operate the signal facilities at the FATOC, to install the signal facilities at an alternate FATOC, and to operate the necessary radio teletypewriter terminals for air support operations.

13. Communications

a. Communications are provided by the battalion within and to the main, alternate, and rear echelons of field army headquarters. The signal installation at army alternate nearly duplicates that at main; however, army alternate has only enough personnel for one duty shift.

- (1) Army alternate is located a sufficient distance from army main to insure maximum protection in case of a nuclear strike on the main CP. Army main and alternate normally are connected by means of a multichannel radio relay system that provides both voice and teletypewriter channels.

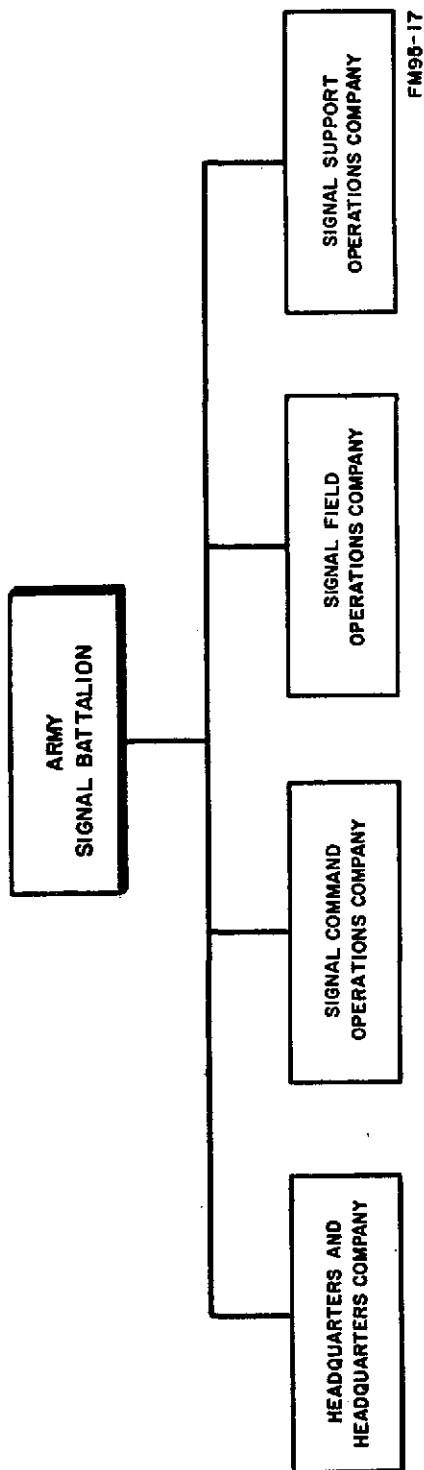


Figure 3. Organization of army signal battalion.

- (2) The signal facilities at army alternate and the trunk systems connecting that CP with army area signal centers will be so installed that, in the event army main is destroyed by enemy action, continuity of communications will be maintained throughout the rest of the system.

b. Supervision of signal facilities operated by the army signal battalion is the responsibility of the battalion commander. Due to the fact that elements of the battalion are located to support the echelons of army headquarters, he normally delegates supervision over the facilities supporting each echelon of army headquarters to one officer.

c. When a mobile tactical CP is required, signal facilities and operating personnel are provided by a team from the battalion.

14. Pictorial Service

a. Ground pictorial service for field army headquarters is provided by the army pictorial platoon of headquarters and headquarters company. This service includes still and motion picture photography (silent and sound), still photographic laboratory services, and the reproduction of army aviation aerial photographs. It does not include the processing of Air Force aerial reconnaissance photography and exposed motion picture and still color film.

b. Photography is performed by still and motion picture teams equipped with $\frac{1}{4}$ -ton trucks, and one sound motion picture team equipped with a $\frac{3}{4}$ -ton truck.

c. The battalion also has two mobile photographic laboratories that are normally employed at army main.

15. Messenger Service

a. Motor messenger service (fig. 4) at field army level supports both the army signal group and the combat area signal group. This service is performed by the motor messenger section of the signal command operations company. The section provides 24-hour scheduled messenger runs from army main to—

- (1) Army rear.
- (2) Army alternate.
- (3) Each corps main headquarters.
- (4) Airfields in the field army's area of responsibility.
- (5) Major headquarters in the immediate area.

b. The army signal battalion coordinates an air messenger service when the aircraft are provided by the field army, or provides this service when augmented by an air messenger section (fig. 6).

Usually, air messenger augmentation will be authorized when adequate support of this type cannot be provided by field army aviation units.

c. Normally, any unit serviced by the motor messenger teams can expect minimum service of two runs per day. Following are type motor and air messenger schedules:

Type Motor Messenger Schedule (Type Field Army)

From	To	Team runs	
		Scheduled	Special
MAIN	REAR	2	0
MAIN	ALTN	2	1
MAIN	CORPS (3)	12	1
MAIN	AIRSTRIPS	2	0
MAIN	MISC HQS	2	0
		20	2

Type Air Messenger Schedule (Type Field Army)

From	To	Airplane helicopter runs	
		Scheduled	Special
MAIN	REAR & ALTN	2	0
MAIN	CORPS(3)	3	1
MAIN	AREA DISTR	2	0
MAIN	MISC HQS	2	0
		9	1

16. Displacement

a. The army signal battalion TOE provides limited personnel and equipment for operations during displacement of army main and army alternate headquarters. Additional personnel and equipment are not provided for concurrent operation at the old and new location during displacement of army rear.

b. There are several methods of displacing the army main and army alternate headquarters. The method selected is a command decision that is based on existing circumstances. Two methods are as follows:

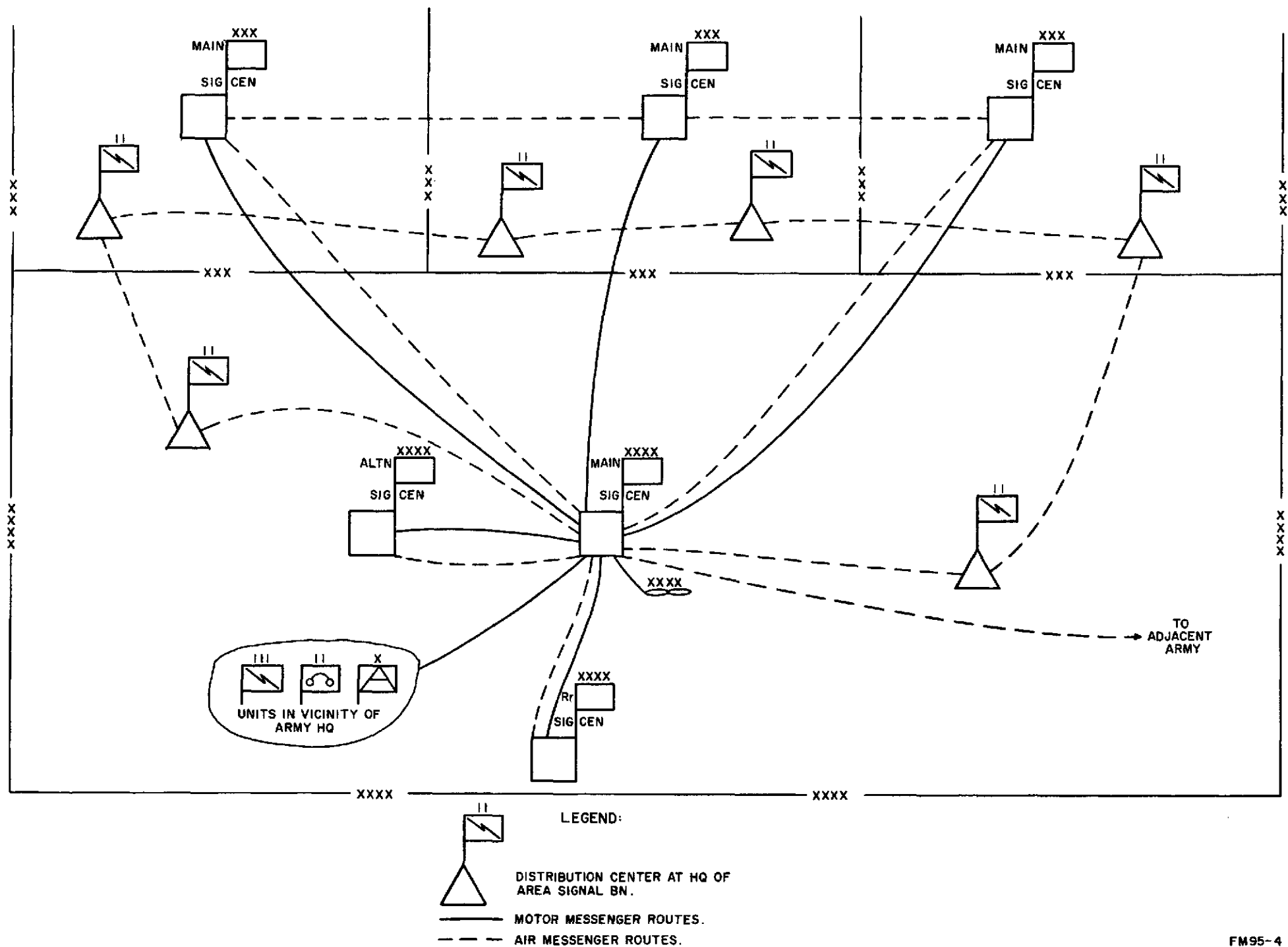


Figure 4. Type signal messenger service (field army).

- (1) Operations close at the old location of army main, and all personnel and equipment are moved as expeditiously as possible to the new CP location. In this method, army alternate must exercise control until army main is ready to resume operations. Army alternate is then closed and moved to its new location, where it again assumes its status as the alternate headquarters.
- (2) Communication facilities for each element of army headquarters are displaced by echelonment to maintain continuous operations. Minimum facilities are installed in a projected new area to enable the headquarters to begin operations. Facilities are phased out of the old location and built up in the new as rapidly as movement of elements of headquarters will allow until the old location is completely closed out. When this method of displacement is used, a specific date and hour must be established for simultaneously closing the old CP and opening the new CP.

c. Army rear is displaced as in method (2) above, but with a reduction in its communications capability. During displacement of the army rear CP, support from the area signal centers in the vicinity of the old and the new CP locations may be required. This support will be in accordance with the army standing signal instructions (SSI).

CHAPTER 4

HEADQUARTERS AND HEADQUARTERS COMPANY

Section I. INTRODUCTION

17. General

Headquarters and headquarters company provides the means by which the battalion commander exercises command, administrative, operational, and logistical control over the companies of the battalion.

18. Location

Headquarters and headquarters company usually is located with the army signal group, near the army alternate CP. It is normally employed in one echelon.

19. Communications

Internal communications (fig. 5) for headquarters and headquarters company are provided by company headquarters. Trunk circuits to the army alternate switchboard and, when practical, to the army signal group are installed and maintained by the cable-wire installation section of the signal field operations company.

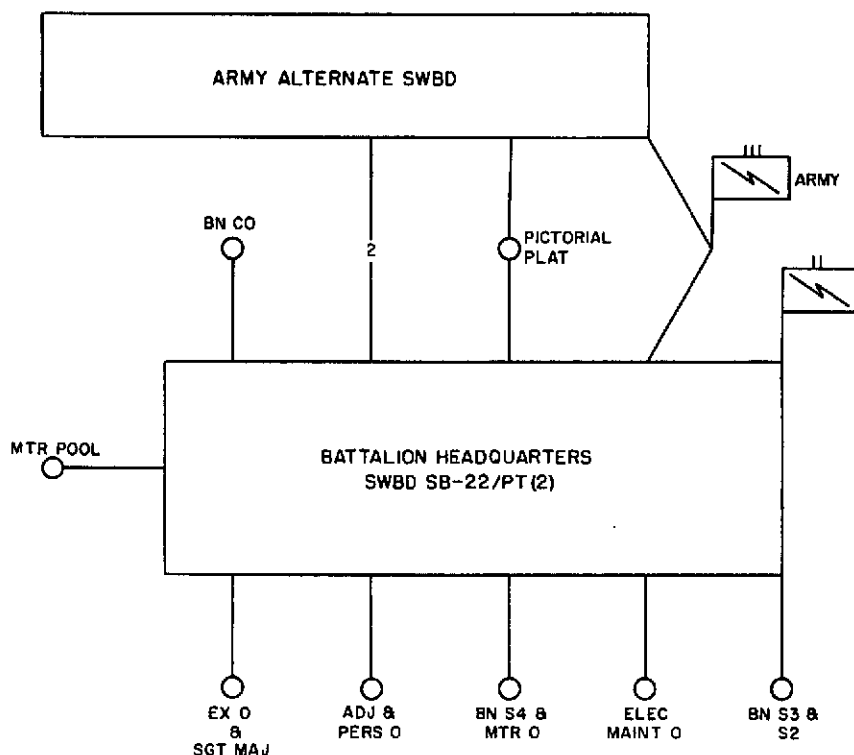
Section II. ORGANIZATION AND EMPLOYMENT

20. General

Headquarters and headquarters company (fig. 6) directs and coordinates the operations and training of the army signal battalion, and provides the headquarters facilities with which the battalion commander exercises command. It provides photographic service for field army headquarters and still picture laboratory service for field army units as needed. When the battalion is authorized the air messenger section, the company provides air courier service as required. The company also provides administrative and logistical support for the battalion. The company is composed of a battalion headquarters and a headquarters company.

21. Battalion Headquarters

Battalion headquarters comprises the battalion commander and his staff.



NOTE:
VARIOUS STAFF SECTIONS MAY BE LOCATED IN THE VICINITY OF ARMY REAR OR ARMY MAIN AND MAY BE PROVIDED SERVICE FROM SWITCHING FACILITIES AT THOSE LOCATIONS.

LEGEND:
○ TELEPHONE SET TA-312/PT
— ONE FIELD WIRE TP CIRCUIT

FM95-15

Figure 5. Type communication diagram, headquarters and headquarters company.

a. The battalion commander normally operates under the administrative control of the army signal group commander, and under the operational control of the army signal officer. He commands the battalion through his staff and by personal supervision of the various functions and missions of the battalion.

b. The battalion executive officer, the S1, the S4, and the motor officer supervise the logistical and administrative functions of the battalion and coordinate these functions with the army signal group staff. An S2/3 is provided as the operations and intelligence officer.

c. The communication center officer supervises all functions pertaining to communication center operation at all echelons of

field army headquarters. He is normally located at the army main signal center, where he represents the army signal section and the combat area signal group. The assistant communication center officer is also located at the army main signal center, but he may be placed in charge of communication facilities at army alternate during field operations.

d. The chaplain provides religious services for personnel of the army signal battalion and the headquarters and headquarters detachment, army signal group.

22. Headquarters Company

Headquarters company contains a company headquarters and six operating elements.

a. *Company headquarters* provides for the operation of mess, unit supply, and weapons maintenance facilities; in addition, it provides internal communications for headquarters and headquarters company. When the company is located with the army signal group headquarters, company headquarters is augmented by personnel from the group headquarters detachment to provide joint housekeeping services. Company headquarters also operates and maintains power generators that provide power and light for battalion headquarters and the army signal group headquarters.

b. *The battalion personnel and administrative section* provides personnel and facilities to support the battalion commander in carrying out his responsibilities for personnel, administrative, and religious activities. It operates under the supervision of the adjutant.

c. *The battalion operations and intelligence section* provides personnel and facilities with which the battalion S2/3 supervises the operations, training, and intelligence missions of the battalion. This section must maintain close coordination with the army signal section, and with the system control and information section of the combat area signal group.

(1) Operations of the section are centered in an S3 operations van, which is usually located at army main near the army signal section.

(2) Mobile radio sets are provided for the battalion commander and the S3 to enable them to contact higher headquarters and organic unit commanders during displacement or when normal telephone service is not practical. These sets can also contact the radio/wire integration stations at the area signal centers.

d. *The battalion logistical section* operates under the immediate supervision of the battalion S4. The section consolidates company

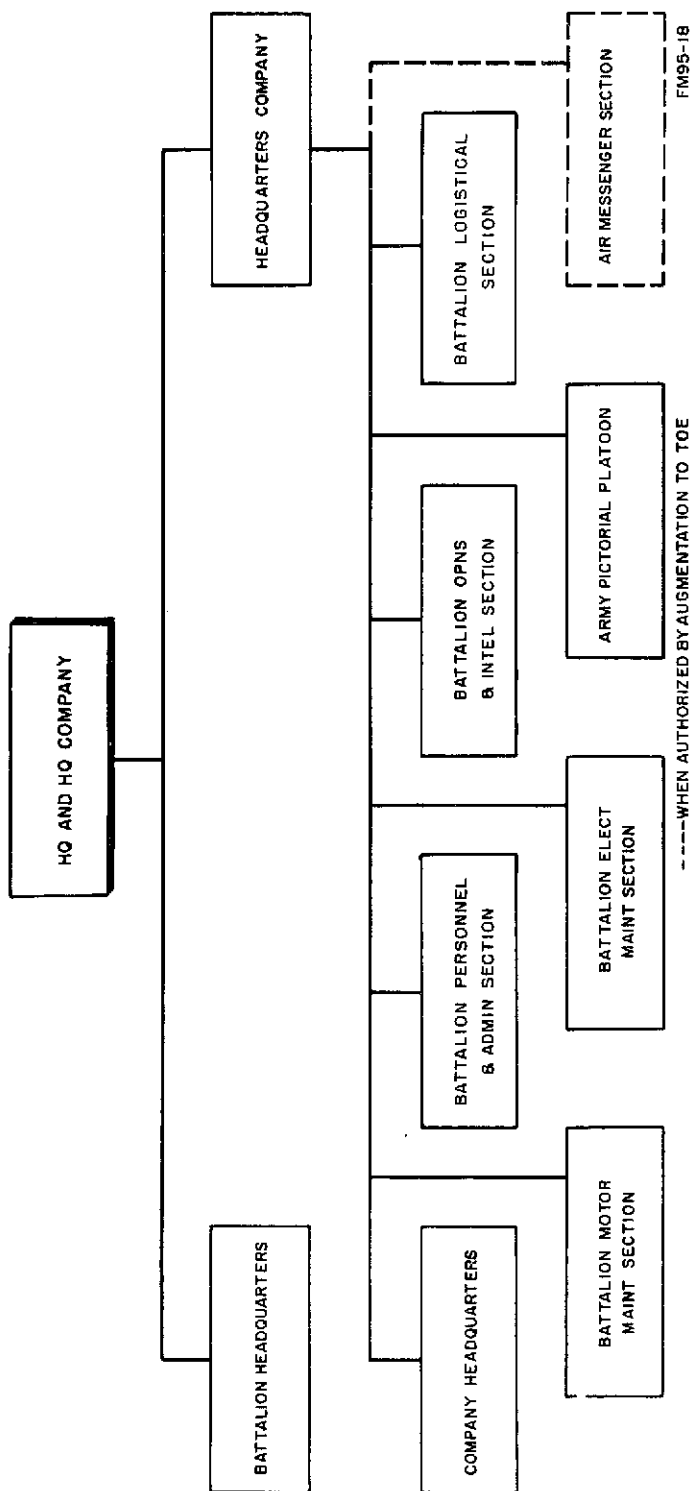


Figure 6. Organization of headquarters and headquarters company.

requisitions; picks up common items of supply and maintenance from depots or supply points; coordinates the turn-in and return of equipment requiring field maintenance beyond the capability of the battalion electronics maintenance section; interprets army supply directives; insures that organic companies comply with army supply directives; and prepares all logistical reports required by higher headquarters.

e. The battalion electronics maintenance section furnishes personnel and facilities to supervise battalion signal maintenance, to provide organizational signal maintenance for headquarters and headquarters company, and to augment the signal maintenance capability of the organic companies, when required. Enlisted repair specialists are provided for the maintenance of radio, cryptographic, teletypewriter, photographic, wire electronics, and central office equipment. This section will usually operate from a central location, but it can be dispersed if required.

f. The battalion motor maintenance section operates under the supervision of the battalion motor officer. It provides organizational motor vehicle maintenance for headquarters and headquarters company, augments the motor vehicle and power generator maintenance capability of the organic companies, and supervises motor vehicle and power generator maintenance of the battalion.

g. The army pictorial platoon normally functions under the operational control of the army pictorial officer on the staff of the army signal officer. Refer to paragraph 14 for platoon operations.

CHAPTER 5

SIGNAL COMMAND OPERATIONS COMPANY

Section I. INTRODUCTION

23. General

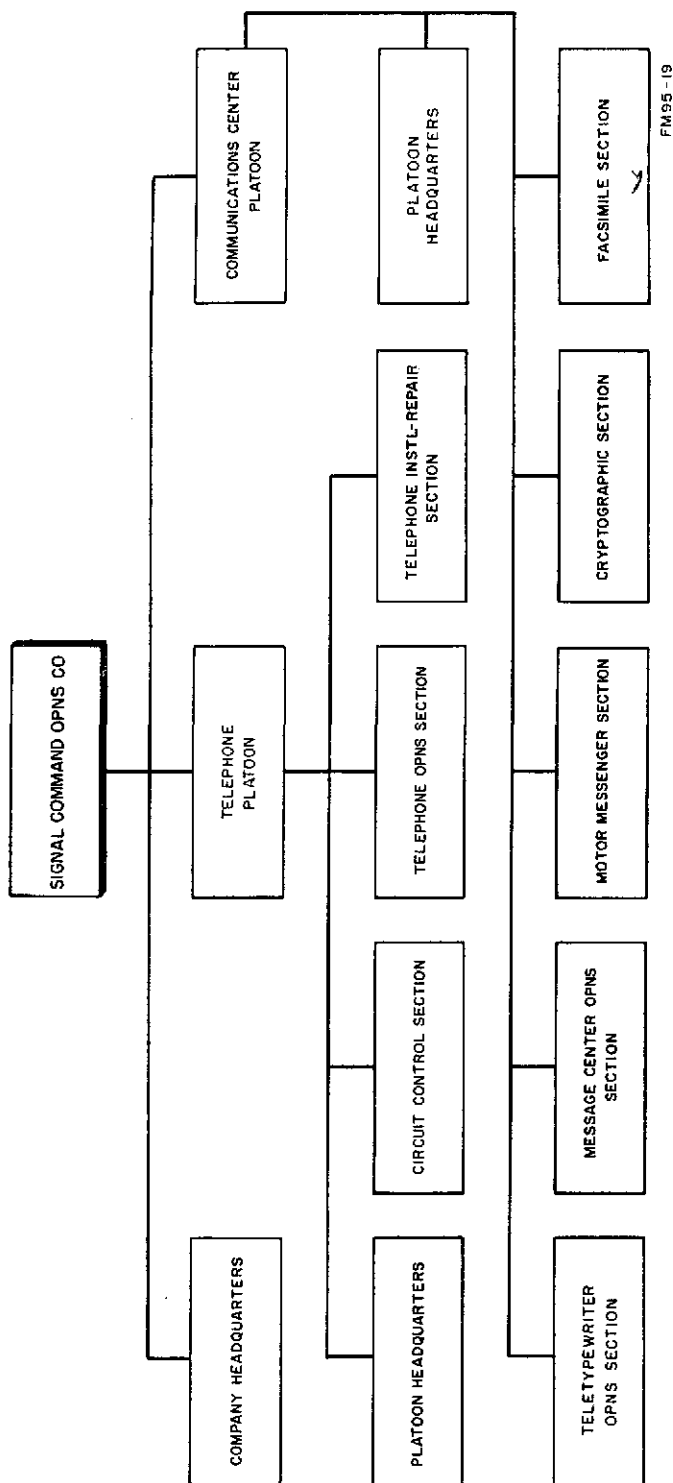
a. The signal command operations company (fig. 7) installs, operates, and maintains terminal-type communication facilities (message center, motor messenger, cryptographic, facsimile, telephone, and teletypewriter) at army main, alternate, and rear headquarters. The facilities at army main are duplicated as far as practical at army alternate headquarters. Certain of these facilities are operated on a full-time basis, and the remainder are maintained in a state of operational readiness. The company also:

- (1) Provides circuit patching and control facilities at each echelon of army headquarters.
- (2) Operates a motor messenger service between the echelons of army headquarters, to corps headquarters, to airfields providing air courier and messenger service, and to major headquarters in the vicinity of army main.
- (3) Provides signal services for units in the vicinity of army main and army rear when the units are closer to army headquarters than to an army area signal center.

b. The company depends on the signal field operations company for the provision of trunking facilities, both radio relay and spiral-four carrier, from the echelons of army headquarters to designated army area signal centers; the provision of radio teletypewriter terminals as required; and the installation of long local wire circuits to units in the vicinity of the echelons of army headquarters.

24. Communications

a. The signal command operations company has a local battery switchboard and telephones to establish communications for company headquarters. One wire line is installed from company headquarters to the army main telephone central. The company commander is provided with a vehicular radio set for contacting radio/wire integration stations, higher headquarters, and other



FM 55-19

Figure 7. Organization of signal command operations company.

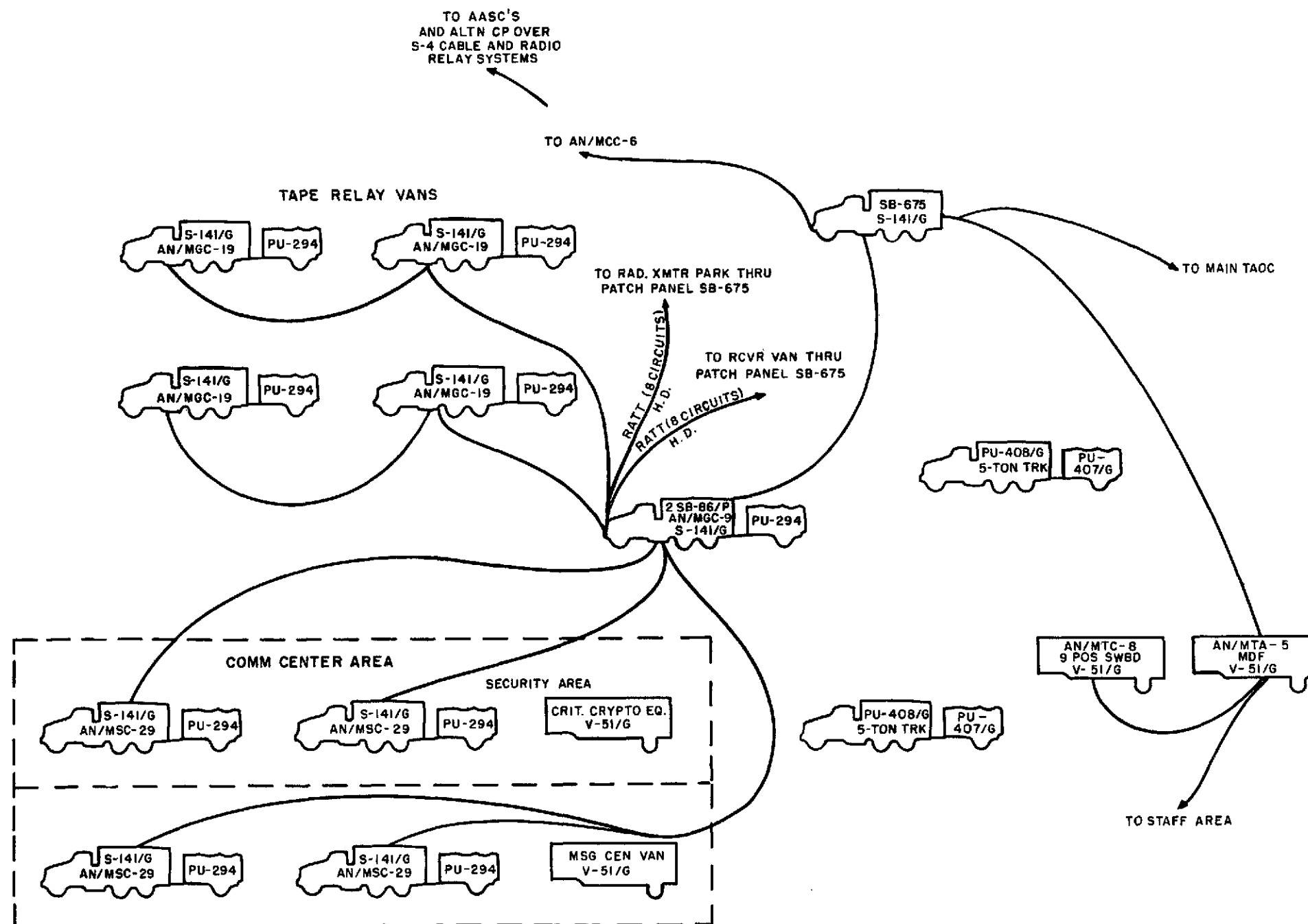
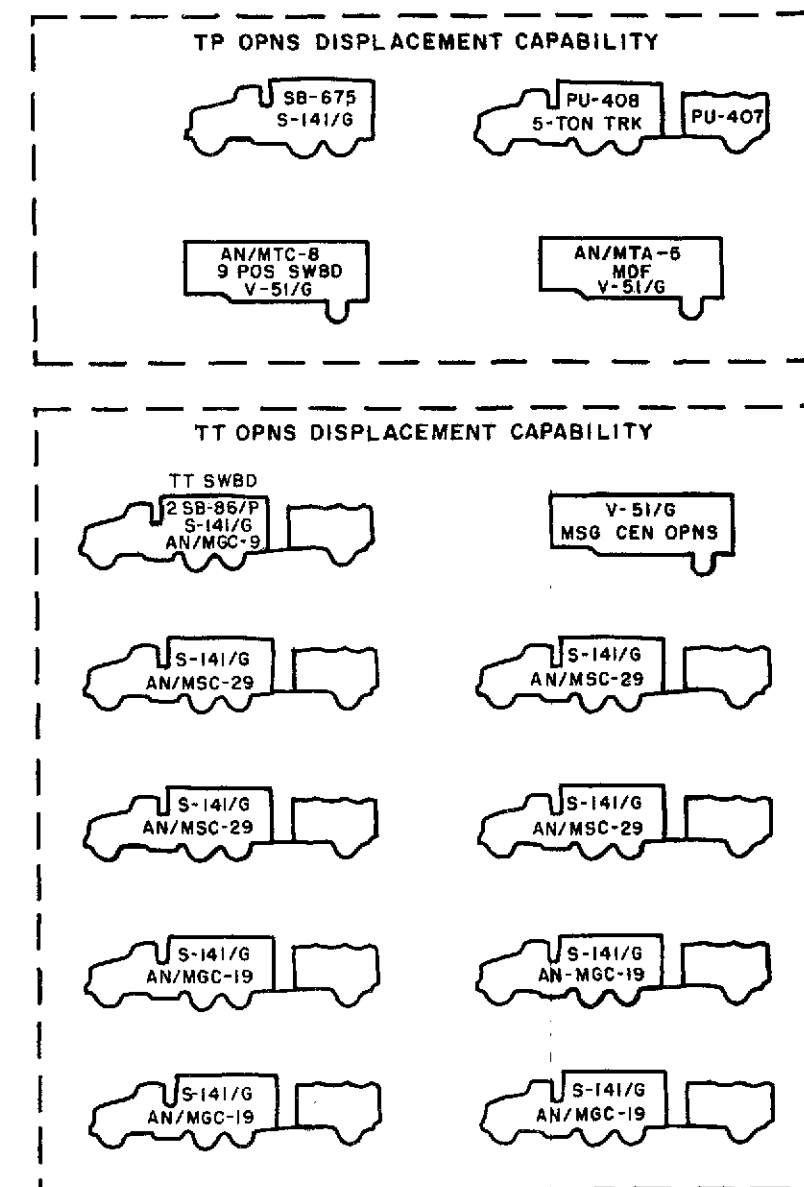


Figure 8. Type employment of communication facilities at army main (provided by signal command operations company).



stations in the net when the company is displacing or when he is away from the company CP.

b. A type employment of the communication facilities established by the company at army main and army rear is illustrated in figures 8 and 9, respectively. Type teletypewriter operations at army main are shown in figure 10.

Section II. ORGANIZATION AND EMPLOYMENT

25. General

a. The signal command operations company consists of a company headquarters, a telephone platoon, and a communication center platoon.

b. The company commander receives instructions from the battalion commander concerning command, operational, and administrative matters. Based on these instructions, the company commander installs, operates, and maintains communication facilities at the echelons of the field army headquarters. He establishes schedules based upon the traffic load for a 24-hour period, personnel available, and the requirement for temporary reliefs to permit messing. In the performance of his mission, the company commander maintains close liaison with the commanding officer of the signal field operations company.

26. Company Headquarters

Company headquarters provides the personnel and facilities to assist the company commander in providing command supervision and administrative support for the company. It is normally located in the vicinity of army main to facilitate close operational control by the battalion staff and immediate response to the requirements of the army signal officer.

a. Company headquarters has organic mess and motor maintenance capabilities; however, it depends on headquarters and headquarters company for personnel administration and for augmentation of its motor and signal equipment maintenance capability.

b. Company headquarters is responsible for the physical security of company installations.

27. Telephone Platoon

The telephone platoon installs, operates, and maintains the telephone switchboards and the communication patching panels. In addition, it installs and maintains the command post telephones and the telephone distribution circuits at each echelon of the army headquarters.

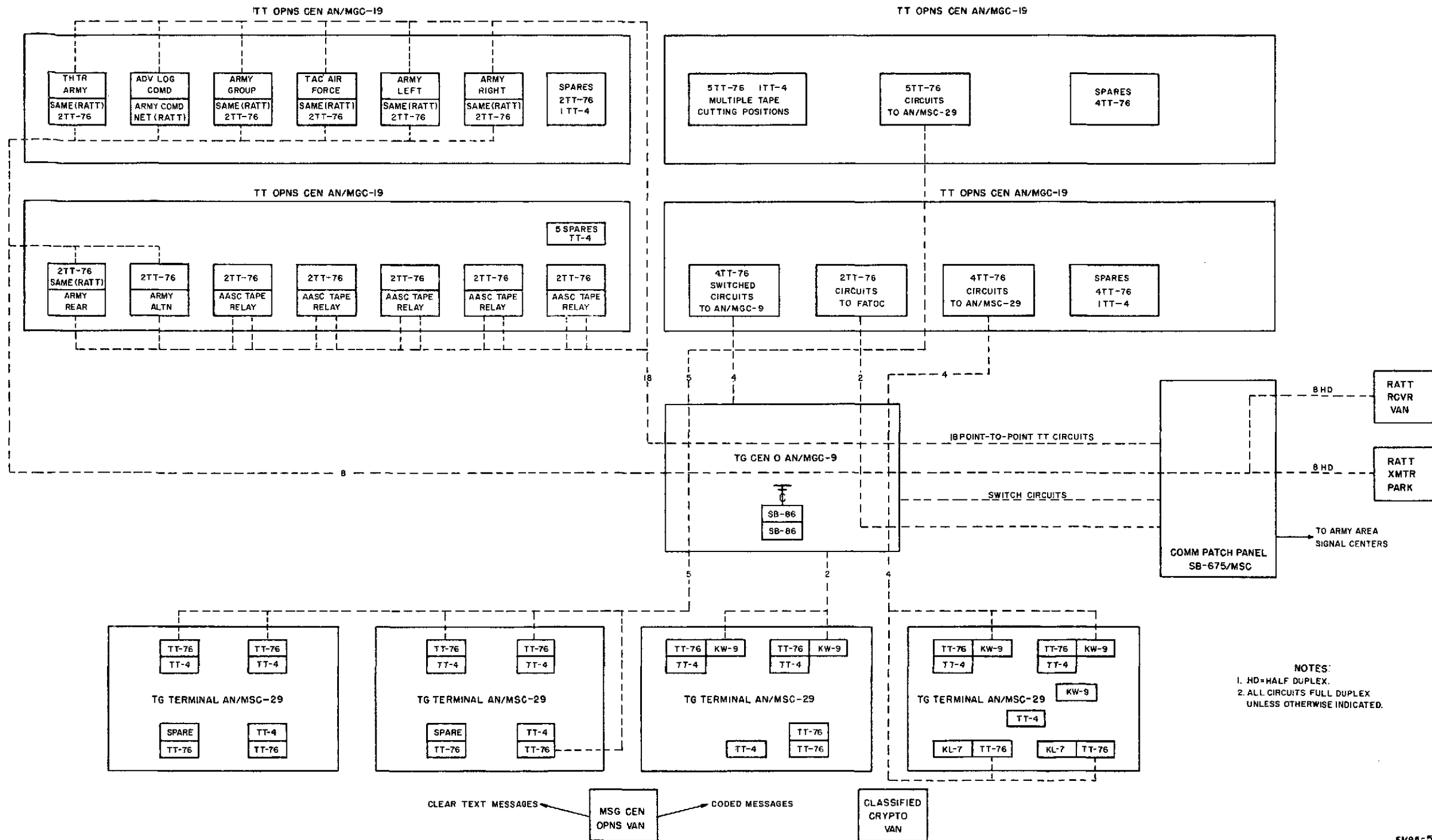


Figure 10. Type teletypewriter operations (army main).

a. *Platoon headquarters* provides personnel and facilities to supervise platoon activities at each echelon of army headquarters.

- (1) The platoon leader remains at the platoon CP to supervise the installation and operation of the telephone facilities at army main.
- (2) The section leader of the telephone operations section may be designated the officer-in-charge of the signal detachment at army rear.
- (3) The assistant section leader of the telephone operations section will supervise the installation and operation of telephone facilities at army alternate.

b. The *circuit control section* installs and operates two Communication Patching Panels SB-675/MSC and one Communication Patching Panel SB-611/MRC at echelons of army headquarters. Two additional SB-675's provide a displacement capability at army main and alternate; a patch panel is not provided for displacement of army rear.

c. The *telephone operations section* installs, operates, and maintains a 9-position Manual Telephone Central Office AN/MTC-8 at army main. The section also installs, operates, and maintains, on a standby basis, a 9-position AN/MTC-8 at army alternate. In addition, the section installs, operates, and maintains a 3-position Manual Telephone Central Office AN/MTC-1 at army rear. A displacement capability is provided at army main and army alternate, but not at army rear. Personnel of the telephone operations section operate in three shifts.

d. The *telephone installation—repair section* provides the personnel and equipment to install and maintain the internal telephone distribution circuits and the telephones.

- (1) Seven teams, each of which consists of three installer-repairmen, are equipped with a $\frac{3}{4}$ -ton vehicle that is used to carry Reel Unit RL-31. Three of these teams are utilized at army main, three at army alternate, and one at army rear.
- (2) Five wire teams, each consisting of four men, are equipped with a $\frac{3}{4}$ -ton vehicle that is used to carry Reel Unit RL-31. These teams install multipair cable within the CP complex. Two of these teams operate at army main, two at army alternate, and one at army rear.

28. Communications Center Platoon

The communications center platoon provides and operates the message center and motor messenger service, and the cryptographic, facsimile, tape relay, teletypewriter, and teletypewriter

switchboard facilities at the echelons of field army headquarters. Facsimile equipment is not provided for operation at army rear.

a. The communication center officer on the battalion staff supervises the operations of all the communications centers at the echelons of army headquarters. He receives clerical and motor transportation support from the communications center platoon.

b. *Platoon headquarters* provides personnel and facilities to supervise platoon operations.

c. The *message center operation section* processes incoming and outgoing messages for dispatch over available communication means. The section also processes and handles pouched message distribution for dispatch. The section furnishes three messengers, with ¼-ton trucks, for local message delivery and pickup in the army main complex. The section also furnishes two local messenger teams to army alternate and one to army rear.

- (1) The assistant section leader usually is in charge of message center operations at army alternate, and a signal message supervisor usually is in charge of the army rear message center.
- (2) Two men are available at army main to provide a displacement capability; if additional personnel are required, they are drawn from the off-duty shift.
- (3) The message center at army alternate operates on a standby basis with one full traffic shift of five men. Two additional men are provided for displacement.
- (4) A personnel displacement capability is not provided at army rear; thus, personnel from the off-duty shift must be utilized for this purpose.

d. The *motor messenger section* operates under the control of the communications center officer at army main. Refer to paragraph 15 for section operations.

e. The *cryptographic section* provides cryptographic facilities and personnel at army main and army alternate; it provides only cryptographic personnel at army rear.

- (1) The cryptographic personnel at army rear operate and maintain the TSEC/KL-7 and TSEC/KW-9 equipment in Telegraph Terminal AN/MS-29, which is assigned to the teletypewriter operations section. These cryptographic facilities are operated on a 24-hour basis by seven men.
- (2) The cryptographic personnel at army main operate and maintain one Telegraph Terminal AN/MS-29 and classified cryptographic equipment mounted in a van.

- (a) The AN/MS-29 is located near the message center operations van, where on-line and off-line encryption and decryption of messages is performed for the army main communications center.
- (b) The classified cryptographic van mounts devices that provide critical cryptographic systems for which greater security, more detailed accounting, and cryptographic cleared operators must be provided. The van is located near the message center operations van, where electrical transmission and receipt of messages is provided by the AN/MS-29 and the AN/MGC-19.
- (c) Twenty-one personnel of the cryptographic section operate in three shifts: two full-shifts and one low-traffic shift.
- (d) Two men are available to provide a displacement capability; however, displacement teams are normally supplemented by personnel from the off-duty shift.
- (3) One full traffic-shift of eight men is provided to operate the cryptographic equipment at army alternate on a standby basis. Army alternate has two additional personnel for displacement purposes.
- (4) Cryptographic repairmen are provided at each echelon of army headquarters.

f. The facsimile section provides and operates a Facsimile Central AN/TXC-1 at army main; it has the same equipment at army alternate on a standby basis.

- (1) Two facsimile transceivers in the AN/TXC-1 at army main are used as terminals for circuits from the tactical Air Force weather detachment, which furnishes weather maps as they are produced.
- (2) A circuit from army group is utilized to send and receive map overlays, tactical situation maps, and other data that may be readily transmitted over facsimile equipment.
- (3) This section does not have equipment for displacement.

g. The teletypewriter operations section operates and maintains mobile truck and van-mounted teletypewriter facilities at the echelons of army headquarters.

- (1) Telegraph Terminal AN/MS-29 is provided at army rear. This equipment provides teletypewriter switching, teletypewriter sending and receiving facilities, and a cryptographic capability.
- (2) Teletypewriter equipment provided at army main and army alternate consists of Telegraph Central Office

AN/MGC-9 and Teletypewriter Operations Centrals AN/MGC-19. Teletypewriter switching is accomplished in the AN/MGC-9, and clear-text teletypewriter sending and receiving are provided in the AN/MGC-19.

- (3) Figure 10 graphically portrays a concept of teletypewriter operations at army main. This same concept can be applied at army alternate.
- (a) In the figure, the tape relay facility consists of four AN/MGC-19's. In two of the AN/MGC-19's, 18 teletypewriters are used on standby radio teletypewriter circuits. These circuits are connected to a separate radio teletypewriter receiver van by means of 26-pair cable, and to a radio teletypewriter transmitter park by means of a carrier system that uses spiral-four cable. The remaining two AN/MGC-19's are used for transmitting tapes to, and receiving tapes from, the teletypewriter and cryptographic terminals in the army main signal center through the teletypewriter switchboard; and for cutting multiple tapes to facilitate flow of traffic to multiple addresses.
 - (b) Five local circuits are patched through the AN/MGC-9 to a Telegraph Terminal AN/MS-29, which is located near the message center operations van. These circuits expedite the flow of clear-text traffic.
 - (c) Four local circuits are patched through the AN/MGC-9 to an AN/MS-29, which is also located near the message center operations van. These circuits facilitate the flow of all encrypted messages in and out of the communication center.
 - (d) Two local circuits with on-line encryption equipment are utilized between an AN/MS-29 and the AN/MGC-9. These circuits provide army main with an on-line encryption capability.
 - (e) Four local circuits terminate in Telegraph Central Office AN/MGC-9. These circuits are the means whereby units and headquarters located in the vicinity of army headquarters are able to send and receive messages through the tape relay system.
 - (f) Five teletypewriter reperforator-transmitters and one teletypewriter are used for multiple tape preparation. Six teletypewriter reperforator-transmitters are used as spares.
- (4) The facilities at army main are operated by 53 men, whereas the facilities at army alternate, which duplicate

those provided at army main, are operated by 21 men. Nine men are available at army main for displacement purposes, but additional personnel can be drawn from an off-duty shift to complete the displacement capability.

CHAPTER 6

SIGNAL FIELD OPERATIONS COMPANY

Section I. INTRODUCTION

29. General

a. The signal field operations company (fig. 11) provides trunk terminal facilities for connecting army main, alternate, and rear headquarters into the army area communication system, and trunk circuits for linking army main with army alternate. It installs and maintains field cable from the echelons of army headquarters to radio relay, radio teletypewriter, and FATOC locations, and installs long local wire circuits to units in the vicinity of the echelons of army headquarters. The company also provides telephone and telegraph carrier facilities at all echelons of army headquarters, and radio teletypewriter terminals in nets and point-to-point circuits for command, logistical, and liaison functions.

b. The company installs and maintains the communication trunk facilities (except spiral-four cable and unattended repeaters) and associated carrier terminal equipment as follows:

- (1) Radio relay and wire carrier circuits from the echelons of army headquarters to army area signal centers.
- (2) Radio relay circuits from army main to army alternate.
- (3) Radio teletypewriter circuits to subordinate corps and divisions.
- (4) Radio teletypewriter circuits to adjacent field armies, Air Force installations, and higher headquarters (army group, advance logistical command, and theater army).
- (5) Radio teletypewriter circuits to liaison officers with army groups and adjacent armies.

c. The company depends on the signal cable construction battalion for the installation and maintenance of spiral-four cable circuits and associated unattended repeaters from the echelons of army headquarters to designated army area signal centers.

30. Communications

a. The signal field operations company has a local battery switchboard and telephones to establish communications for company headquarters.

b. The company communicates with other elements of the battalion by means of a circuit from company headquarters to the army alternate switchboard. This circuit may be patched through the army alternate patch panel into one of the carrier systems to allow point-to-point communication with battalion headquarters.

c. The company commander is provided with a vehicular radio set for use in contacting radio/wire integration stations, higher headquarters, and other stations in the net when the company is displacing or when he is on liaison or inspection trips.

d. A type employment of the radio and wire trunk facilities, displacement/utility equipment, and the radio teletypewriter communications operated by the company are illustrated in figures 12 through 16.

Section II. ORGANIZATION AND EMPLOYMENT

31. General

The signal field operations company installs, operates, and maintains carrier facilities, radio relay trunk facilities, and radio teletypewriter service, as required, to support the echelons of field army headquarters.

a. The number of multichannel systems installed from an echelon of army headquarters to army area signal centers will depend on the traffic requirements of that echelon.

b. Both terminals of all radio relay and spiral-four carrier circuits are provided by the signal field operations company. The company coordinates the termination of circuits with combat area signal companies and with the signal command operations company.

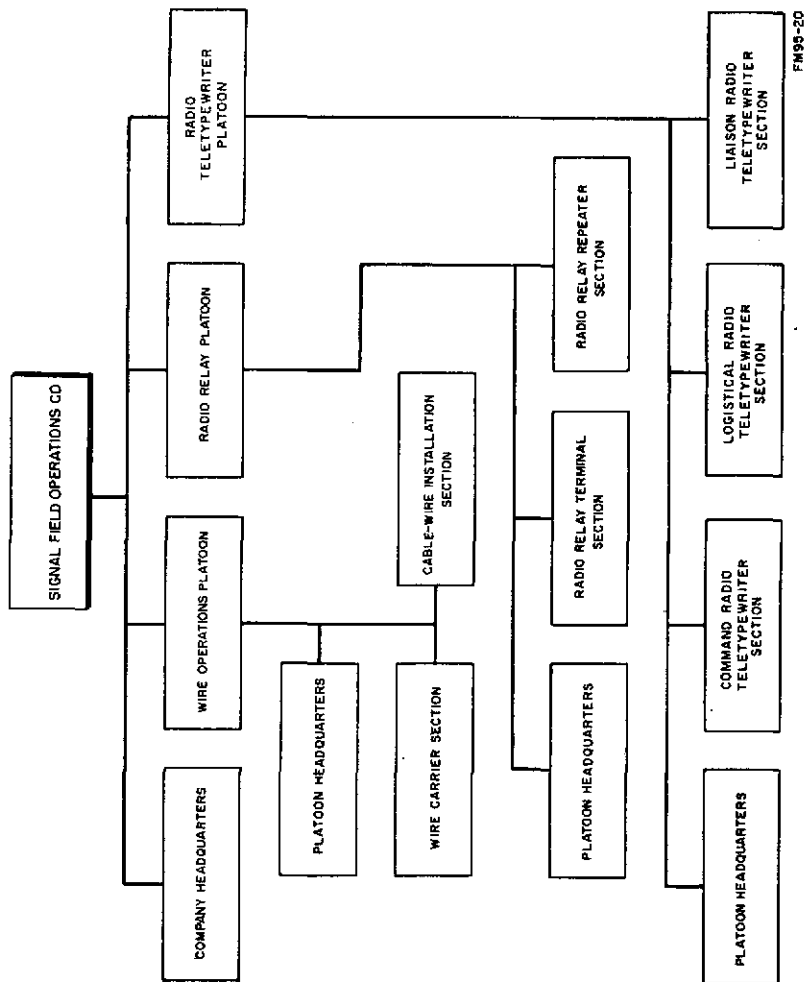
c. All trunking is provided through multichannel carrier wire or radio relay systems.

32. Company Headquarters

Company headquarters provides personnel for command and administrative supervision of the company. Included in administration are mess, supply, and motor maintenance functions. Personnel operating at locations away from the vicinity of the company mess will be attached for rations to units in their area of work.

33. Wire Operations Platoon

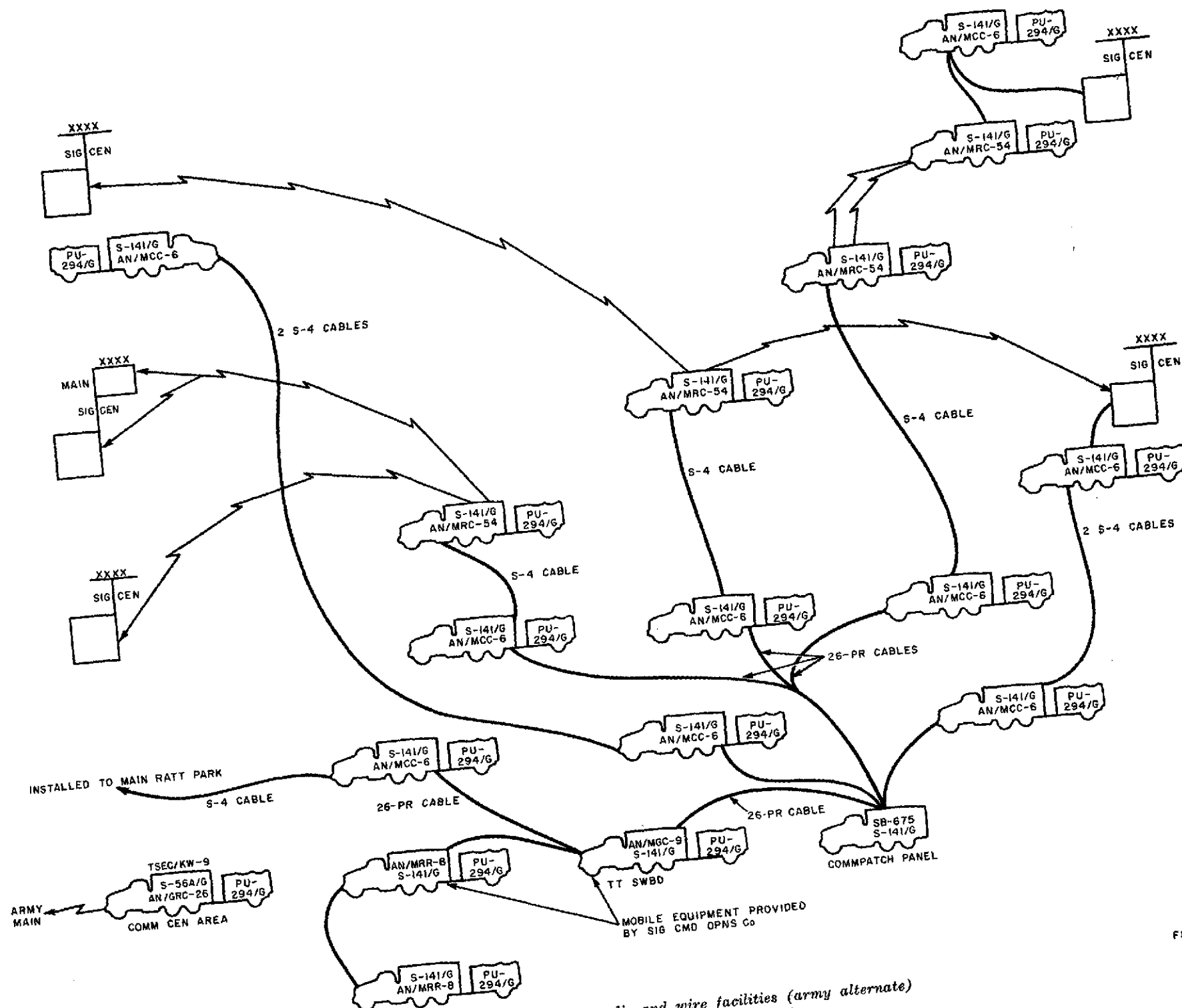
The wire operations platoon installs and maintains spiral-four and multipair cable circuits, and installs, operates, and maintains carrier terminals to support the mission of the company.



FM99-20

Figure 11. Organization of signal field operations company.

Figure 13. Type employment of displacement/utility equipment (army main) (provided by signal field operations company).



FM95-10

Figure 14. Type employment of radio and wire facilities (army alternate)
(provided by signal field operations company).

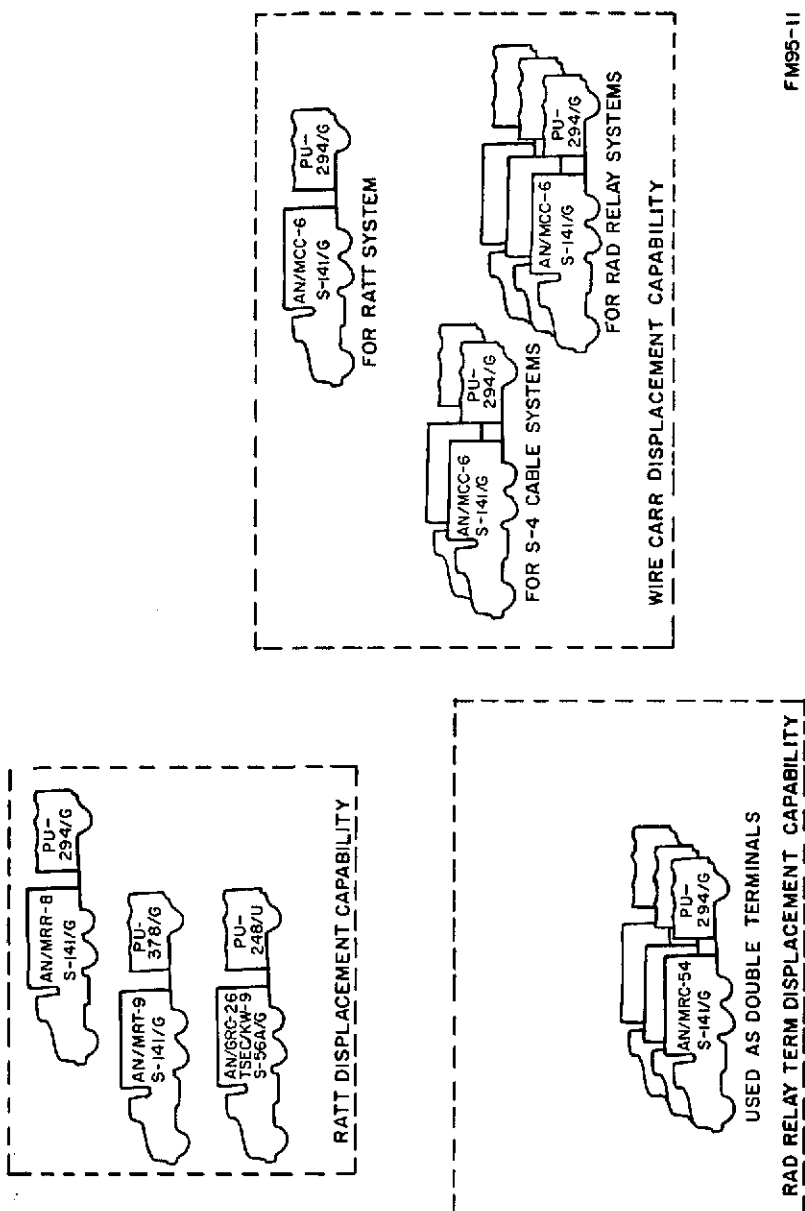


Figure 15. Type employment of displacement/utility equipment (army alternate) (provided by signal field operations company).

Figure 16. Type employment of radio and wire facilities (army rear) (provided by signal field operations company).

a. *Platoon headquarters* provides command and coordination of platoon operations, and second echelon maintenance of the power generator units in the platoon.

b. The *wire carrier section* installs, operates, and maintains mobile carrier terminals on both ends of spiral-four circuits, and at radio relay terminals when Radio Repeater Set AN/MRC-54 is used as a double terminal. The installation of the spiral-four cable and associated unattended repeaters used on systems from echelons of army headquarters to army area signal centers is performed by the signal cable construction battalion; the carrier terminals and attended repeaters are the responsibility of the wire carrier section. The wire carrier section has 41 carrier teams.

- (1) Twelve of the teams consist of three men each. They operate Telephone-Telegraph AN/MCC-6 Terminals at those army area signal centers where spiral-four cable and radio relay circuits from the echelons of army headquarters are terminated.
- (2) The remaining 29 teams contain 2 men each.
 - (a) Twelve of these two-man teams operate AN/MCC-6's at the echelons of army headquarters to terminate spiral-four cable and radio relay systems.
 - (b) Two of the teams provide the terminations for the spiral-four cable between army main and its remote radio teletypewriter park.
 - (c) One team provides the termination for the spiral-four cable carrier system between army alternate and the same remote radio teletypewriter park that serves army main.
 - (d) Fourteen teams provide an augmentation and displacement capability at the echelons of army headquarters.

c. The *cable wire installation section* installs and maintains spiral-four cable from radio relay sites to carrier terminals at the echelons of army headquarters; between army main and its radio teletypewriter park; between army alternate and the radio teletypewriter park for army main; and between the FATOC and its radio teletypewriter park, both at army main and army alternate. The cable wire installation section also installs 26-pair cable for communications within army main and army alternate headquarters, and long local wire circuits to units and installations in the vicinity of the echelons of army headquarters. The section is composed of eight teams of four men each: four teams at army main, three teams at army alternate, and one team at army rear.

34. Radio Relay Platoon

The radio relay platoon installs, operates, and maintains radio relay systems and associated repeaters to support the company mission.

a. Platoon headquarters provides command and coordination of platoon operations. It also provides second echelon maintenance of the power generator unit assigned to the platoon.

b. The radio relay terminal section provides terminal facilities for radio relay systems at army area signal centers, and at each echelon of army headquarters.

(1) The section operates and maintains two types of mobile equipment:

(a) Twenty Radio Repeater Sets AN/MRC-54, which may be used as double radio relay terminals in conjunction with AN/MCC-6's.

(b) Four attended Telephone Repeaters AN/MCC-3, which are employed with AN/MRC-54's when the radio repeaters are located at a distance of more than 1 mile from the headquarters.

(2) The section is composed of 20 teams, each of which is equipped with one AN/MRC-54.

(a) Thirteen of the teams are committed. When these teams operate independently at some distance from the headquarters, they should be composed of three men each.

(b) Seven of the teams are held in reserve for displacement purposes. These teams may be augmented by personnel from operating teams during displacement.

(c) The four AN/MCC-3's are available for commitment when required. Only one man is provided for each of these sets.

c. The radio relay repeater section is organized into four teams, which are used to establish radio relay repeater stations, as required, to support the company mission. There are four men assigned to each team.

35. Radio Teletypewriter Platoon

a. The radio teletypewriter platoon establishes radio teletypewriter circuits to higher headquarters and adjacent armies, and provides stations in the army command, logistics, and liaison radio nets.

(1) At army alternate and rear, the platoon operates its

sets in convenient locations in or near the area occupied by the signal center.

- (2) At army main, the number of radio transmitting stations determines the operation of a remote transmitter park. Receiving stations are concentrated in a radio receiving park close to the signal center that they serve.
- (3) Keying and control lines are brought from army main to the transmitter park over a spiral-four cable carrier system, terminating at the park and at army main in Telephone-Telegraph Terminal AN/MCC-6. Similarly, keying and control lines are established between army alternate and the transmitter park. Keying and control lines for the receiving function are provided by 26-pair cable between the signal center and the receiving station.
- (4) One Radio Set AN/GRC-26 is operated in the vicinity of army main. This set is normally located in the radio receiver park, or in the vicinity thereof, and provides a radio teletypewriter link to army alternate.

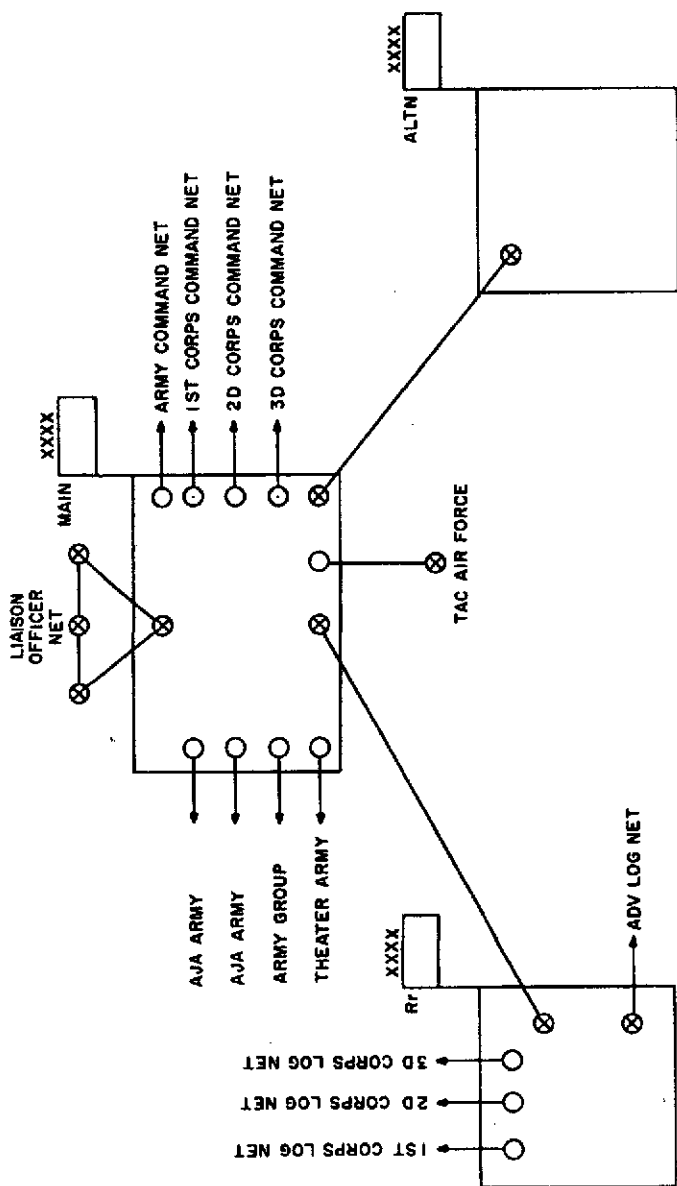
b. Platoon headquarters provides personnel for command and coordination of platoon operations, and for organizational maintenance of cryptographic devices and those power generator units that are organic to the platoon. Radio repairmen are provided to assist in organizational maintenance of the platoon radio equipment.

c. The command radio teletypewriter section operates the following radio transmitting and receiving equipment:

- 2 AN/GRC-19 radio sets
- 7 AN/GRC-26 radio teletypewriter sets
- 2 AN/VRC-9 radio sets
- 4 AN/MRR-8 radio receiving sets
- 3 AN/MRT-9 radio transmitter sets

Type radio nets are shown in figures 12, 15, 16, and 17. The actual net structure and utilization of these radio sets will vary, depending on the operational requirements and governing SOP's. Since the capability of the logistical radio teletypewriter section is limited to that provided by one AN/MRR-8 and one AN/MRT-9, augmentation, if required, will be provided by the command radio teletypewriter section.

d. The logistical radio teletypewriter section operates three radio teletypewriter stations in the army logistical nets, and one point-to-point circuit to the advance logistical command supporting the field army. These stations are provided by one AN/MRR-8 receiver set and one AN/MRT-9 transmitting set, and by aug-



NOTE.

ALL STATIONS SHOWN ARE PROVIDED BY ARMY
SIGNAL BATTALION

LEGEND:

- ⊗ — AN/GRC-26 STATION
- — AN/MRR-8 AND AN/MRT-9 STATION

FM 95-3

Figure 17. Type teletypewriter nets (field army).

mentation from the command radio teletypewriter section. These nets are normally located at army rear.

e. The *liaison radio teletypewriter section* operates the following radio transmitting and receiving equipment:

6 AN/GRC-26 radio teletypewriter sets

3 AN/MRR-8 radio receiving sets

2 AN/MRT-9 radio transmitting sets

This section provides radio teletypewriter stations to net with adjacent armies, tactical air force, and liaison officers. It augments the capability of the command radio teletypewriter section in providing radio teletypewriter support for the field army headquarters.

CHAPTER 7

SIGNAL SUPPORT OPERATIONS COMPANY

Section I. INTRODUCTION

36. General

a. The signal support operations company (fig. 18) provides FATOC communication facilities for army main and army alternate headquarters. Personnel are provided for the full-time operation of only one FATOC, either at main or alternate, depending on the tactical situation.

b. The company provides and operates its radio teletypewriter equipment as follows:

(1) At the main FATOC.

(a) Net control stations (NCS's) for three army air request nets.

(b) The NCS in the army G2 air information net.¹

(c) NSC's for two ground liaison officer (GLO) nets in operation at Air Force fighter-bomber bases.

(d) The NCS for the army weather net.

(2) At the alternate FATOC. Displacement capability for the stations in operation at the main FATOC.

(3) At the air reconnaissance support battalion (ARSB).

(a) One set for operation in the army G2 air information net.¹

(b) Five sets for operation with the air reconnaissance liaison officer (ARLO) net; one set for each of four ARLO's at tactical air force reconnaissance bases, and one set for the NCS at ARSB headquarters.

c. The company depends on the cable-wire installation section of the signal field operations company for the installation and maintenance of multipair cables from the FATOC switchboard van to the army main communication patching panel. The same installation and maintenance functions are performed at the army alternate FATOC. Trunk circuits to corps fire support coordination centers (FSCC's) and other tactical support agencies operating at a distance from the FATOC are provided by other elements of the army signal battalion and the army area communication system.

¹ The NCS for this net may be shifted to the ARSB, as required.

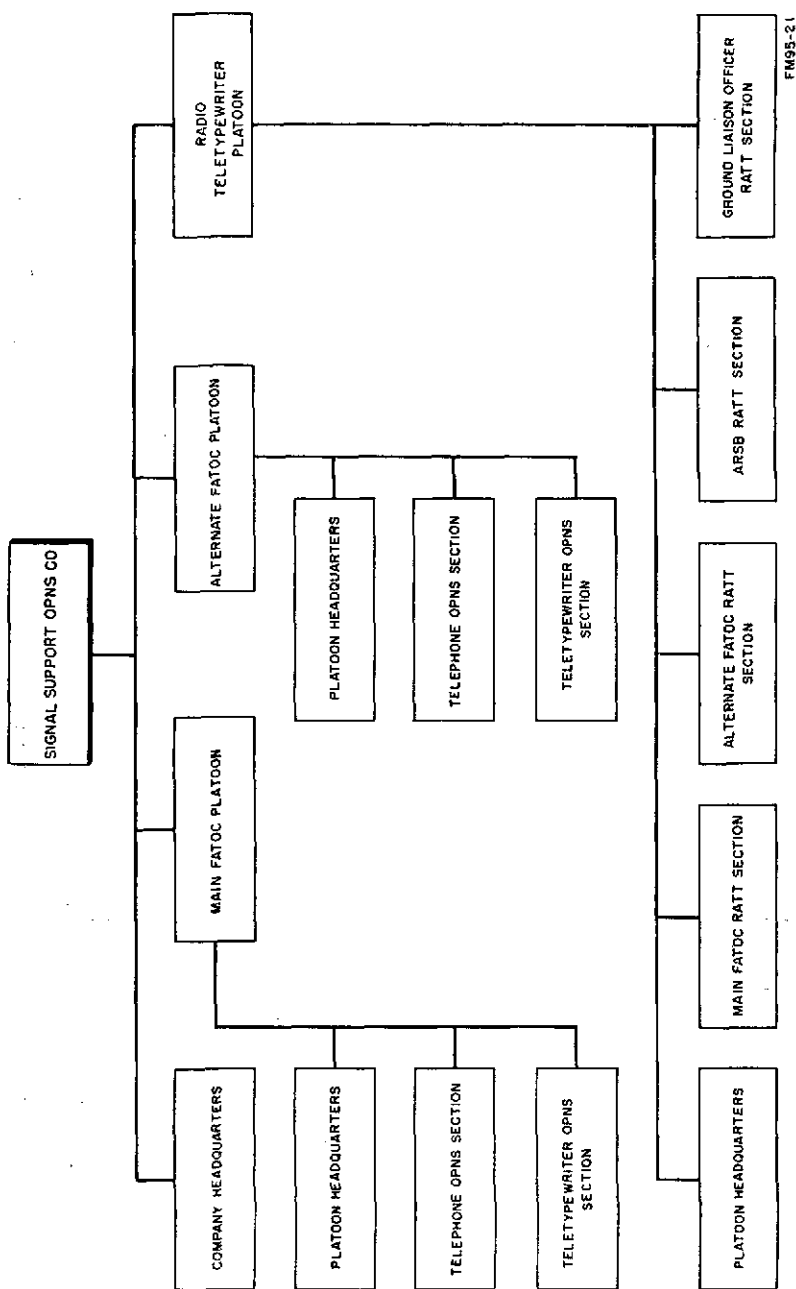


Figure 18. Organization of signal support operations company.



Figure 19. Type employment of communication facilities for FATOC (provided by signal support operations company).

37. Communications

a. The signal support operations company has a local battery switchboard and telephones to establish communications for company headquarters. This company, which is normally located near army main, installs one wire circuit to the army main telephone switchboard and one wire circuit to battalion headquarters, if it is located nearby. The company commander is provided with a radio set for command control of the company during periods when he is away from the company area or during displacement of the company. This set is used to contact radio/wire integration facilities at the area signal centers, higher headquarters, and other stations in the net.

b. A type employment of communication facilities for the FATOC's and for air-ground operations is shown in figures 19 and 20, respectively. A type communication diagram for FATOC is illustrated in figure 21.

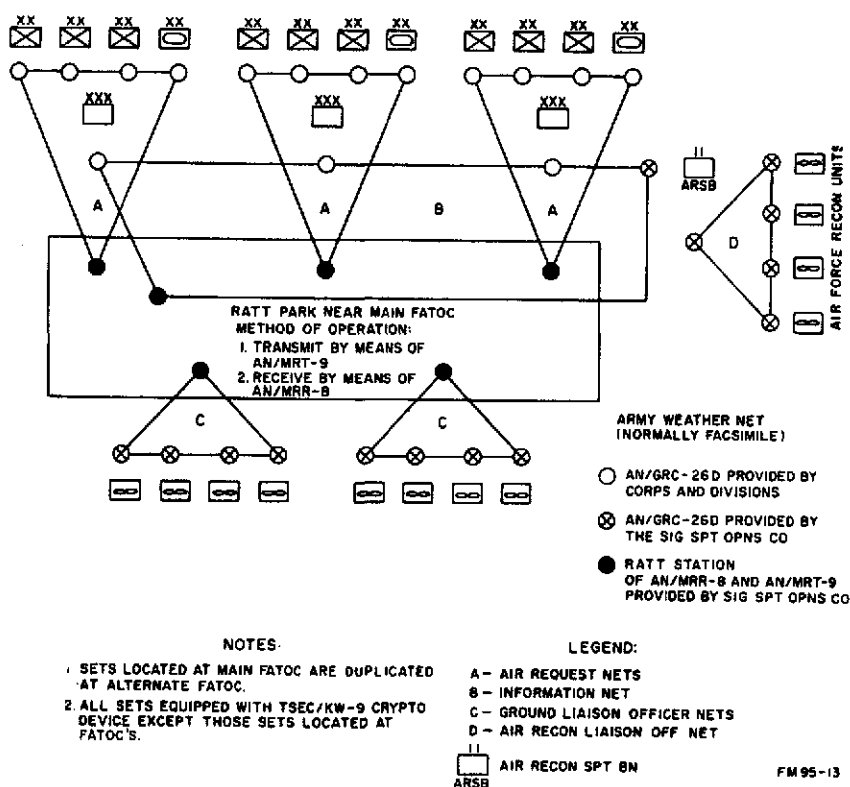


Figure 20. Type radio teletypewriter nets for main FATOC, ARSB, and GLO operations.

Section II. ORGANIZATION AND EMPLOYMENT

38. General

a. The signal support operations company operates the communication facilities at the main FATOC, installs the communication facilities at the alternate FATOC, and operates the necessary radio teletypewriter terminals for air support operations.

- (1) The company is normally employed in two echelons, at army main and army alternate.
- (2) Company headquarters is located near the army main FATOC, but not in the CP area.

b. Specific instructions are received from the G2-G3 operations center regarding the location and planned moves of the main and alternate FATOC's. These and other instructions concerning signal personnel, equipment, and standing operating procedures (SOP) are received from the army signal officer through the signal battalion S3. Based on these orders and instructions, the company commander supervises the installation, operation, and maintenance of one FATOC facility at army main. A second FATOC facility is installed at army alternate or at another designated location.

c. The company commander lists the requirements for trunk circuits from the FATOC to points outside of the FATOC. These requirements, which must be provided by the army area communication system, are placed on the combat area signal group system control and signal information section by the army signal battalion S3. After written operation orders or verbal instructions have been issued by the system control section to combat area signal battalions, the circuit control personnel at army main coordinate directly with the combat area signal companies providing the trunk circuits.

d. The signal support operations company performs its own organizational maintenance functions, but receives supplemental assistance, as required, from headquarters and headquarters company of the army signal battalion and mobile signal repair teams of the army signal supply and maintenance battalion.

39. Company Headquarters

a. Company headquarters provides personnel and facilities for command, administrative, training, and logistical supervision of the company. It has organic mess, unit supply, and motor maintenance facilities. It provides assistance to, but depends on, the signal field operations company for the messing of FATOC personnel located at army alternate.



Figure 21. Type communication diagram for FATOC.

b. Personnel of company headquarters deliver gasoline and diesel fuel to the company motor pool and FATOC sites. A 5-ton wrecker is provided for use in handling trailer-mounted power units and signal equipment mounted in shelters. It may also be used to insure mobility of the 30-foot vans used in the FATOC's.

40. Main FATOC Platoon

The main FATOC platoon provides the personnel and equipment to install, operate, and maintain telephone, teletypewriter, power, and associated facilities for a FATOC at army main (fig. 16).

a. *Platoon headquarters* provides command and coordination of platoon operations. Personnel of platoon headquarters operate as follows:

- (1) Vehicle drivers are provided on a full-time basis to perform preventive maintenance, and to drive the four truck tractors authorized the platoon.
- (2) The photographers use Polaroid-type cameras to take pictures of the tactical data displayed on map and status boards of the various operating sections of the FATOC. They process the film for projection as slides. The photographic reproduction machine in the FATOC switchboard van is utilized to make multiple copies of the slides.
- (3) Communications center specialists and local foot messengers operate principally from the communication van associated with the G2-G3 operations center. The communications center specialists assist the teletypewriter operators in recording and processing messages. The messengers deliver incoming messages to the G2-G3 operations center and other operating sections.
- (4) Generator operation-maintenance personnel operate and maintain the four diesel generators used to furnish power and lights for the FATOC. These generators do not provide power to carrier and radio teletypewriter equipment that have associated power generators. The generator operators also lay and recover the power cables between the generators and the vans in the FATOC. Normally, only two generators are in operation at the same time.

b. The *telephone operations section* operates and maintains the manual and automatic dial switchboards in the FATOC switchboard van. Trunk circuit connections to outside agencies are coordinated with the army main circuit control chief.

- (1) The central office repairmen in the section act as alter-

nate switchboard operators, and assist the circuit control operator when required.

- (2) During busy periods, one switchboard operator will be required at each of two positions.
- (3) Telephone and cable installers install, maintain, and repair telephone instruments in the vans of the FATOC, and lay out and interconnect all communication cables between the elements of the FATOC.

c. The teletypewriter operations section operates and maintains the teletypewriter and cryptographic equipment authorized the five operating sections of the FATOC. These sections are the fire support, air defense, electronic warfare, direct support aviation, and G2-G3 operations center.

- (1) The teletypewriter operations section provides vans and tractors for the fire support, air defense, and electronic warfare sections. These tractors are driven by teletypewriter operators (additional duty).
- (2) The section operates a total of 15 teletypewriter terminals in the five operating sections of the FATOC. A full-duty shift requires three operators at the direct support aviation section and the G2-G3 operations center, and one operator each at the three other sections.
- (3) The section provides a teletypewriter equipment repairman and a cryptographic equipment repairman for the repair of equipment in the various sections of the FATOC.

41. Alternate FATOC Platoon

a. The alternate FATOC platoon provides equipment and personnel for the alternate FATOC. The equipment is identical to that in the main FATOC, but personnel provided the platoon are sufficient only for limited operations. When the alternate FATOC becomes operational due to disruption of communications at the main FATOC, additional operating signal personnel are drawn from the main FATOC or from other sources available to the army signal officer in emergencies. The method of operation of the alternate FATOC then becomes the same as that of the main FATOC.

b. The alternate FATOC platoon has the same transportation capability as the main FATOC platoon, except for a 2½-ton truck in the teletypewriter operations section of the main FATOC platoon. This 2½-ton general-purpose truck and trailer is not needed until the alternate FATOC becomes operational. At that time, the truck is used to transport additional operating per-

sonnel to the site of the alternate FATOC, and to assist in displacing the main FATOC. It is then returned to the alternate FATOC (which now becomes the main FATOC) to be used in transporting personnel to and from the company mess and bivouac area.

42. Radio Teletypewriter Platoon

The radio teletypewriter platoon provides radio teletypewriter terminals in army air request nets, the army information net, GLO nets, and army weather nets. It also provides the terminals at the air reconnaissance support battalion for use in the army information net and the ARLO net. Figure 20 shows a type employment of the radio teletypewriter sets in the platoon.

a. Platoon headquarters supervises platoon operations and provides repairmen for the repair and maintenance of teletypewriter, cryptographic, and radio equipment in the operating sections of the platoon. The repairmen visit the various radio terminals on call; in addition, they perform scheduled maintenance checks on all signal equipment in the platoon.

b. The main FATOC radio teletypewriter section operates and maintains radio teletypewriter sets, telephone-telegraph carrier terminals, and a radio receiving center. The operations of this section fall into three main categories:

- (1) *Radio transmitting.* Two Radio Transmitting Centrals AN/MRT-9 are operated in a location remote from the FATOC.
 - (a) The AN/MRT-9's are not equipped with security devices, because the TSEC/KW-9's for these terminals are located in the communications van in the direct support aviation section.
 - (b) The AN/MRT-9's are connected to a carrier terminal truck located in the radio teletypewriter park. All of the sets in the radio teletypewriter park are removed from the communications van of the direct support aviation section in the FATOC. Transmission from the FATOC to the radio teletypewriter park is accomplished by means of a carrier system.
- (2) *Radio receiving.* Receiving is accomplished by means of two Radio Receiving Centrals AN/MRR-8, which are located near the FATOC. These AN/MRR-8's are connected to the communications van of the direct support aviation section by means of a 26-pair cable. The AN/MRR-8's contain the receivers and auxiliary equipment for a separate radio teletypewriter receiver site. This

site will normally be a part of the FATOC complex, and will obtain power from the Diesel generators operated in the FATOC.

(3) *Carrier terminals.* Two Telephone-Telegraph Terminals AN/MCC-6 are operated by the main FATOC radio teletypewriter section.

(a) One terminal is located near the FATOC, and is connected to the communications van of the direct support aviation section by means of a 26-pair cable. The other terminal is located at the radio teletypewriter transmitter park, and is connected to each AN/MRT-9.

(b) Spiral-four cable is used to connect the two AN/MCC-6's. The length of this cable circuit may vary from 1 to 5 miles, depending on the tactical situation and terrain features.

(c) Two circuits are provided from each radio station at the radio teletypewriter transmitter park to its corresponding teletypewriter/cryptographic equipment in the communications van of the direct support aviation section. One circuit is used for transmitting, and the other for voice coordination between the radio teletypewriter operator and the teletypewriter operator in the FATOC.

c. The *alternate FATOC radio teletypewriter section* installs the same signal equipment as is operated and maintained at the main FATOC. When the alternate FATOC becomes operational and is augmented by personnel from the main FATOC radio teletypewriter section, the method of operation is identical to that of the main FATOC.

d. The *ARSB radio teletypewriter section* operates and maintains six AN/GRC-26's (equipped with security equipment) at the ARSB. The teams that operate this equipment are normally attached to the ARSB. Signal maintenance assistance is provided by the power generator specialists and the cryptographic equipment repairmen organic to the section. Due to the dispersed nature of section operations, additional signal maintenance support must be obtained from the nearest mobile signal repair team.

e. The *ground liaison officer radio teletypewriter section* operates and maintains a maximum of eight AN/GRC-26's (equipped with security equipment) at Air Force fighter-bomber bases. The teams of this section are sent to those Air Force bases that provide aircraft in direct support of the field army. The teams' operations are controlled by the NCS's in the FATOC. The power generator specialist in this section performs scheduled maintenance

nance on organic power units when time and travel distance make this procedure practical. The section depends on the nearest mobile signal repair team for radio, teletypewriter, and cryptographic maintenance support.

CHAPTER 8

SECURITY

43. General

a. As treated in this chapter, security is considered to refer only to *physical* security, as opposed to *communications* security, and embraces all measures taken to protect the army signal battalion against—

- (1) Nuclear blast and the resulting radiological activity.
- (2) Attack by enemy ground, air, and airborne elements.
- (3) Chemical and biological warfare attack.
- (4) Harassment by guerrilla forces.
- (5) Enemy observation.

b. The TOE of the army signal battalion provides personnel and equipment to furnish communications, on a 24-hour basis, for field army headquarters. The dispersion of the battalion throughout the echelons of army headquarters and the establishment of organizational bivouac areas and remote communication sites require that a considerable amount of the communication effort of the battalion be diverted in order that it may provide the required security for its installations. To insure more productive use of the battalion's communication capability, security for signal battalion installations within the echelons of the army headquarters must be assumed by the army troops providing the security force at each echelon of the army headquarters.

c. Communications security is appropriately covered in AR 380-5 and other pertinent directives.

44. Defense Measures

Defense measures may be either active or passive or both. Active defense is the warding off of attack by direct offensive action against the attacker. Passive defense concerns measures, such as dispersion, concealment, and cover, taken to protect personnel and installations against enemy action. Because the army signal battalion has a limited number of weapons for active defense, it will depend primarily on passive defense for security.

45. Defense Plans

Security of signal installations is accomplished according to a

defense plan developed by the commander and his staff. An adequate defense plan covers the following essential points:

a. Defense measures must apply to all adjacent areas and to all directions from which an enemy attack can be expected. Measures must include an adequate alarm system that consists of observers and available means of signal communication to warn of hostile activity.

b. Each platoon and section leader must know the kind and number of available weapons and the amount of effective fire power available for concentration.

c. Suitable protective shelters and field fortifications must be planned, constructed, and made available to all unit personnel.

d. Security elements that must be established include guard posts and guard patrols to give warning of air-ground, chemical-biological-radiological (CBR), or other enemy attack, and to enforce blackout and camouflage discipline.

46. Individual Defense

Because of the possible use of mass destruction weapons and attacks by enemy ground, air, and airborne elements, and guerrillas in a theater of operation, every member of the unit must anticipate sudden and unexpected assaults and be prepared to cope with them through proficiency in the elements of individual defense. These elements include:

a. Use of CBR detection devices.

b. Use of protective clothing, gas masks, and individual antidotes.

c. Construction of fox holes, slit trenches, and other hasty fortifications.

d. Use of weapons.

e. Techniques of unarmed defense.

47. Installation Defense

The following defense measures must be observed continuously at each installation:

a. Maximum dispersion of vehicles, personnel, and equipment without loss of effective control.

b. Posting of adequate guards and CBR sentries.

c. Maintenance of blackout discipline.

d. Maintenance of camouflage discipline.

e. Formulation of specific plans of defense against air, ground, guerrilla, and CBR attacks by enemy forces.

f. Digging in of equipment whenever practicable.

48. Mine Clearing

The unit commander must insure that mines, booby traps, and like explosive material are cleared from the bivouac and adjacent areas, and from all other areas in which the unit operates. Such clearance should be accomplished by trained personnel in accordance with practices and procedures prescribed by the Corps of Engineers. The assistance of engineer troops for clearing mines may be requested by the battalion commander.

49. Camouflage

a. Camouflage discipline is the responsibility of the battalion commander. Natural and artificial camouflage materials are employed for protection against enemy observation.

b. The battalion commander must insure that maximum camouflage effort is maintained. Natural land features, such as wooded areas, caves, and cliffs, are utilized to obtain concealment.

50. Defense Against Air Attack

Measures to be employed against air attack include:

- a.* Dispersal of facilities within an installation or area.
- b.* Camouflage of structures and areas by concealment or deception.
- c.* Maximum use of terrain features.
- d.* Rigid blackout discipline.
- e.* Concealment of vehicle tracks.
- f.* Unobtrusive siting of motor parks and equipment stores.
- g.* Construction of foxholes and other shelters.
- h.* Digging in of equipment whenever practicable.

51. Defense Against Guerrilla Action

The possibility of guerrilla action against signal installations demands effective security and defense measures. These measures include troop, supply, and installation security.

a. Guerrilla activity is frequently directed toward capturing equipment and supplies for future use in other guerrilla operations. Since communication supplies are an especially valuable prize, effective security measures are essential. Lack of security discipline permits equipment to be lost or stolen, and to be used later by guerrilla forces.

b. Sites selected for signal installations must be secure against guerrilla action. Both stationary guards and roving patrols should be employed and they should be rotated and changed frequently in order to have alert personnel on duty to minimize the effect of sabotage and guerrilla attack.

52. Defense Against Chemical Attack

Protection against chemical attack by the enemy is an important defense consideration. Such defense measures include:

- a.* Use of gas masks.
- b.* Use of protective clothing.
- c.* Use of gas proof shelters.
- d.* Posting of gas sentries.
- e.* Protection of food and water supplies.
- f.* Use of decontamination techniques.

53. Defense Against Biological Attack

Protection against the use of biological warfare by the enemy includes the following defense measures:

- a.* Use of protective clothing and equipment.
- b.* Use of shelters.
- c.* Observing the principles of military sanitation.
- d.* Protection of food and water supplies.
- e.* Use of decontamination techniques.

54. Defense Against Nuclear Attack

Protection against shock, blast, flash, radiation, and other effects of nuclear warfare includes the following defense measures:

- a.* Use of gas masks and protective clothing.
- b.* Use of underground shelters for personnel, equipment, and supplies.
- c.* Dispersion of personnel and equipment.
- d.* Use of fire-fighting apparatus.
- e.* Establishment of a warning system.
- f.* Use of radiological detecting instruments.
- g.* Use of personnel decontamination centers.
- h.* Digging in of equipment whenever practicable.

55. Destruction of Equipment

When it becomes necessary to abandon an installation, the equipment, facilities, and supplies that cannot be evacuated are destroyed to prevent possible use or study by the enemy. Destruction of facilities and supplies is ordered by the unit commander as directed by higher authority. It is accomplished according to the destruction plan prepared and maintained by the unit commander.

a. A well prepared destruction plan is detailed and comprehensive. It includes operations that are easy to perform, but

which are consistent with those procedures prescribed in appropriate technical manuals.

b. Destruction is accomplished as rapidly as possible and as thoroughly as time permits. Adequate precautions also must be taken for the protection of friendly personnel and their equipment. The same essential components of like or similar equipments must be destroyed to prevent possible cannibalization by the enemy.

CHAPTER 9

SUPPLY AND MAINTENANCE

Section I. SUPPLY

56. General

The acquisition and timely distribution of adequate supplies play an important part in the successful accomplishment of the battalion's mission. The battalion commander must be familiar with the status of supplies and equipment within his organization and must thoroughly consider the logistical support required for contemplated operations. He must insure that proper planning, record-keeping, and directive guidance are provided to produce a steady flow of the required supplies.

57. Battalion Supply System

Supply is a major function of the battalion logistical section. All echelons are responsible for assuring that undue delay does not occur in accomplishing effective supply support. Internal battalion supply procedures must be designed to implement and facilitate responsiveness in the supply system. The army signal battalion operates under a centralized supply procedure in accordance with published directives. The method used to consolidate requisitions and distribute supplies will be influenced by the following factors:

- a.* Current supply directives.
- b.* Dispersement of organic units.
- c.* Transportation.
- d.* Supply sources.
- e.* Mission to be performed.

58. Requirements

The emphasis on supply will be from front to rear; that is, the using unit places the demand upon its next higher echelon of supply. The present Department of the Army supply system is based upon demand experience. It is, therefore, essential that all requirements generated within a unit be documented. Overstockage hoarding and trading for necessary replacement parts cannot be tolerated. As a consequence of such practices, the bat-

talion's experience factors may be revised due to reduced demands and result in shortages of supplies at a time when the need for them is most critical.

59. Supply Economy

Commanders at every level must rigidly supervise the practice of conservation of material by all personnel within their commands. By strict enforcement of specific supply economy instructions and frequent inspections, the command will be assured that units possess their required supplies and equipment. In addition to the responsibility of command, every individual, whether or not he has personally signed for the material he is using, is responsible for its care, preservation, and conservation.

60. Inspections

Command inspections are made periodically as directed by higher headquarters. These inspections check accuracy of records, supplies, and equipment on hand, overages, shortages, serviceability, and storage. In addition, local inspections will be conducted by the battalion commander, staff members, and company commanders.

Section II. MAINTENANCE

61. General

Maintenance is the care necessary to keep equipment in good working condition. It includes both the ordinary care exercised by operators and users, and the repair work performed by trained technicians. Table I shows the categories of maintenance and their relationship with the echelons of maintenance.

62. Preventive Maintenance

Preventive maintenance is the care and servicing of equipment by using personnel for the purpose of maintaining it in satisfactory operating condition. It provides for the systematic inspection, detection, and correction of incipient failures, either before they occur or before they develop into major defects. Commanders are responsible for compliance with instructions and procedures for preventive maintenance operations, the training of their command in preventive maintenance of equipment, and the allocation of sufficient time for performance of preventive maintenance. Training in preventive maintenance is equal in importance to other functional military training. The full impact of the principles of command responsibility is often lost; it must penetrate every level of command from the commanding general to the platoon

and squad leader. Only through active interest by commanders at each level can a successful preventive maintenance program operate.

63. Maintenance Inspections

Commanders are responsible for frequent and thorough inspections to insure that maintenance is properly performed. These inspections are the means by which the commander can determine whether the equipment in his organization is serviceable and maintenance is adequate. Regulations provide for the following types of inspections: command, preventive maintenance, spot check, and command maintenance (AR 750-5, AR 750-8, and AR 750-625).

Table I. Maintenance of Signal Battalion Equipment

Category	Echelon
ORGANIZATIONAL*	FIRST
Who: Performed by the using organization.	Work performed by the man or crew using the equipment. It is the heart of preventive maintenance and the critical link in the entire army maintenance system. It must be regular and systematic. At the first sign of anything wrong the operator must notify the organization mechanic.
What: Consists of inspecting, cleaning, servicing, preserving, lubricating, adjusting, and replacing such minor parts as spark plugs or radio tubes.	
Responsibility: Organization commander.	
	SECOND
	Work requiring basic skill and performed by trained organization mechanics, using tools, test equipment, and repair parts. Mechanics replace minor parts and subassemblies and perform periodic inspections and lubrications that are the vital second half of preventive maintenance. Each individual applies preventive maintenance techniques as in first echelon.
FIELD*	THIRD
Who: Performed by maintenance activities in direct support of using organizations.	Work requiring more skill and special tools. It is performed by trained maintenance units or by mobile repair crews in direct sup-

Category	Echelon
What: Consists primarily of repair and replacement of un-serviceable parts, subassemblies, or assemblies. Equipment repaired is normally returned to the organization to which it belongs. Third echelon field maintenance organizations also handle repair parts supply for using organizations. Responsibility: The army commander.	port of the using organization. It includes repair and replacement of subassemblies and assemblies. Each individual applies preventive maintenance techniques as in first echelon. FOURTH Work requiring tools and skill not available in third echelon. It is performed in maintenance units which often combine third and fourth echelon work. It includes repairing major assemblies and subassemblies for return to lower echelons. Each individual applies preventive maintenance techniques as in first echelon.
DEPOT* Who: Performed by fixed or semi-fixed shops having extensive equipment. What: Consists of a major overhaul or complete rebuilding of parts, subassemblies, or entire major items. Rebuilt equipment is usually returned to depot stocks for reissue. Responsibility: Chiefs of the technical services.	FIFTH Work of a major overhaul or rebuild nature performed in a fixed installation. Normally, repaired equipment is returned to stock. Production- and assembly-line methods are employed whenever possible. Each individual applies preventive maintenance techniques as in first echelon.

* Organizational maintenance of all equipment assigned to the signal battalion will be performed at unit level by either the using individuals or trained technicians provided for that purpose.

† Field maintenance for nonsignal equipment assigned to the signal battalion will be performed by a support organization of the technical services serving the area in which the signal battalion is located. Field maintenance on signal equipment will be handled as follows:

1. The battalion electronic maintenance section will maintain battalion organic equipment to the maximum of its capability on a repair-and-return-to-user basis.
2. Equipment requiring maintenance beyond the capability of the battalion electronic maintenance section, or for which immediate replacement is necessary, will be forwarded to the signal repair team supporting the area in which the battalion is located.

‡ Depot maintenance of battalion nonsignal equipment will be performed by the technical service depots supporting the area in which the signal battalion is located. Depot maintenance of signal equipment will be performed by the signal depot supporting the area in which the signal battalion is located.

APPENDIX

REFERENCES

1. Army Regulations

AR 220-60	Battalions, Battle Groups, Squadrons; General Provisions.
AR 220-70	Companies; General Provisions.
AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.
AR 380-5	Safeguarding Military Information.
AR 750-5	Maintenance Responsibilities and Shop Operations.
AR 750-8	Command Maintenance Inspections.
AR 750-625	Maintenance Inspections and Reports; Signal Equipment.

2. Field Manuals

FM 21-5	Military Training.
FM 21-6	Techniques of Military Instruction.
FM 21-30	Military Symbols.

3. Department of the Army Pamphlets

DA PAM 108-1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA PAM 310-1	Index of Administrative Publications (Army Regulations, Special Regulations, Department of the Army Pamphlets, Bulletins, General Orders, and Circulars).
DA PAM 310-2	Index of Blank Forms.
DA PAM 310-3	Index of Training Publications (Field Manuals, Reserve Officer's Training Corps Manuals, Training Circulars, Army Training Programs and Mobilization Training Programs, Programs of Instruction, Army Subject Schedules, Army Training Tests, War Department and Department of the Army Posters, and Firing Tables and Charts).

- DA PAM 310-4 Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
- DA PAM 310-5 Index of Graphic Training Aids and Devices.
- DA PAM 310-7 Index of Tables of Organization and Equipment, Tables of Organization, Type Tables of Distribution, and Tables of Allowances.

4. Tables of Organization and Equipment

- TOE 11-22() Headquarters and Headquarters Detachment, Signal Group.
- TOE 11-95() Army Signal Battalion.
- TOE 11-96() Headquarters and Headquarters Company, Army Signal Battalion.
- TOE 11-97() Signal Command Operations Company.
- TOE 11-98() Signal Field Operations Company.
- TOE 11-99() Signal Support Operations Company.

By Order of *Wilber M. Brucker*, Secretary of the Army:

L. L. LEMNITZER,
General, United States Army,
Chief of Staff.

Official:

R. V. LEE,
Major General, United States Army,
The Adjutant General.

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CNGB (1)	Br Svc Sch (5) except
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Corps (5)	USA Sig RD Lab (10)
Div (2)	USARACS (5)
Bde (2)	MAAG (2) except
Fort Belvoir (5)	MAAG (Iraq) (none)
USMA (5)	Mil Msn (2)
Svc Colleges (5)	Units org under fol TOE: 11-95 (15)

NG: State AG (3); units—same as Active Army except allowance is one copy to each unit.

USAR: Same as Active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

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